
Chapter One

# INVENTORY

# Corvallis Municipal Airport

AIRPORT MASTER PLAN

Corvallis, Oregon

## Inventory

The initial step in the preparation of the airport master plan update for Corvallis Municipal Airport is the collection of information that will provide a basis for the analysis to be completed in subsequent chapters. For the master plan, information is gathered regarding both the airport and the region it serves. This chapter will begin with an overview of the airport history, administration, location, competing airports, and typical weather conditions. This will be followed by a discussion of demographic and socioeconomic factors relevant to the region. A comprehensive overview of the national aviation system for general aviation airports and the role of Corvallis Municipal Airport in the national system are also presented. Finally, an inventory of the existing facilities at the airport will be discussed.

The information outlined in this chapter was obtained through on-site inspections of the airport, including interviews with the airport sponsor, management, tenants, and representatives of various government agencies. Information was also obtained from existing studies and various internet websites. A general list of document sources is provided at the end of this chapter.

### *BACKGROUND INFORMATION*

It is important in any master plan to establish a baseline understanding of the airport setting, including its location, geography, access to other transportation modes, role in the national aviation system, climate, and administration. The following sections will outline these characteristics.

The City of Corvallis had a 2010 Census population of 54,462. It is the county seat of Benton County, Oregon. Corvallis is

located in west-central Oregon, within the scenic Willamette Valley which extends from Portland to the north to Eugene to the south.

## LOCATION AND ACCESS

Corvallis is located approximately 35 miles south of Salem, Oregon, the state capital. The largest city in Oregon, Portland, is approximately 80 miles to the north. Corvallis is the home of the main campus of Oregon State University, giving the community a youthful and educated population. The Willamette River flows through town, with the central business district on the west bank of the river. The river and surrounding mountains provide numerous outdoor recreational opportunities.

The Corvallis Municipal Airport is located outside the city limits of Corvallis, Oregon within Benton County. The airport does fall within the urban growth boundary for the city. The airport is four miles to the south of the central business district. Airport Avenue, the main access road to the airport, extends from Oregon Route 99W, immediately east of the airport. Airport Avenue provides access to the Corvallis Airport Industrial Park and connects to Airport Place, which serves as the entrance road to the airport. Interstate 5 is the closest interstate highway to the airport, located approximately 10 miles east of Corvallis and accessible via the Corvallis-Lebanon Highway (Oregon Route 34). The airport encompasses approximately 1,520 acres and is situated at 250 feet above mean sea level (MSL). A generalized location map is presented in **Exhibit 1A**.

## AIRPORT HISTORY AND DEVELOPMENT

In November 1939, the citizens of Corvallis passed a bond issue to fund the development of a community airport. In 1940, the city purchased 491 acres for the development of an airport, at the present site of the airport. No significant work was done before the December 7, 1941 attack on Pearl Harbor and America's entry into WWII.

The U.S. Army took over the airport property and began construction in February 1942. The army airfield base was completed in May 1943. The U.S. Army Air Force operated the base for a year as first the Army Airbase - Lyndon Field and eventually Army Airbase - Corvallis, Oregon. In May 1944, the Army left Corvallis Air Base and the U.S. Marine Corps took over. The Marines operated a transport squadron there until May of 1945 when the U.S. Navy took control of the base. The Navy operated the base until February of 1946 when the base was decommissioned. The Federal Government transferred the 1,597 acres of the base to the City of Corvallis for two dollars and two stipulations: the land could only be leased, not sold (or it reverted to the federal government), and any fissionable material found on the land was U.S. property.

The City of Corvallis has maintained the airport since then. The airport now encompasses 1,520 acres, of which 220 acres are designated as the Airport Industrial Park. The former Army wooden control tower was demolished in the 1950s along with the wooden water tower that was replaced with a metal water tower which was used until City water was provided in the 1980s. The water tower currently holds a cellular phone transmission system.

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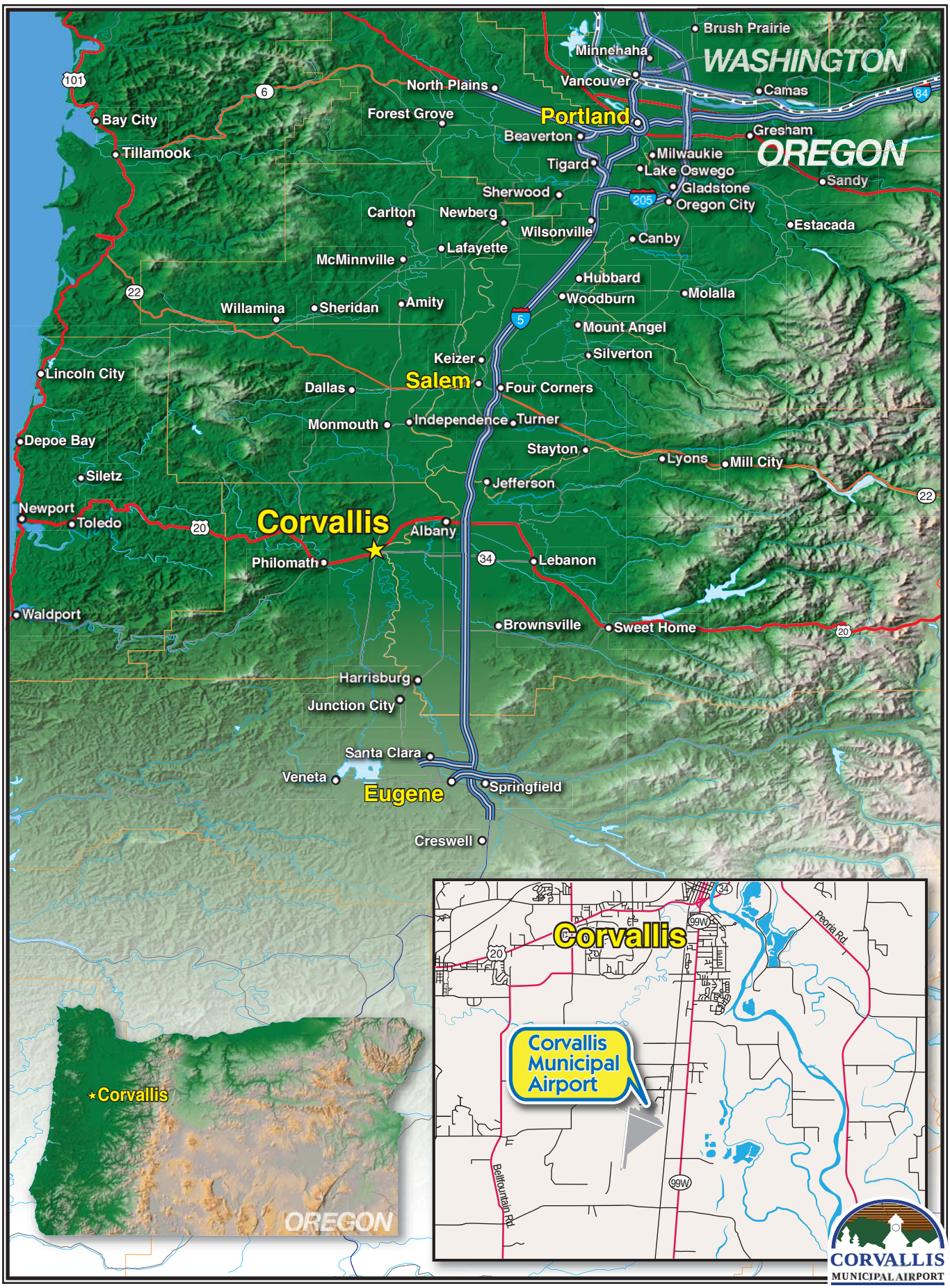


CORVALLIS MUNICIPAL AIRPORT

Exhibit 1A
LOCATION MAP

Over the years, at least five commercial/commuter airlines have operated out of the Corvallis Municipal Airport. As recently as the year 2000, commuter operators provided service to Portland International and Newport, Oregon utilizing a 9-seat single-engine Cessna Caravan aircraft. Competing air service at Eugene, Salem, and Portland have made maintaining sustained service to Corvallis financially challenging. As the flying public has become more accustomed to driving to commercial service airports rather than flying from small local airports, the return of commercial service at Corvallis Municipal Airport is not anticipated. In addition, the airport has not maintained its FAR Part 139 commercial service certificate.

Originally, there were three 5,000 by 150-foot runways arranged in a triangle, two of which had runway edge lights. Ultimately, the third runway was determined to be unnecessary for the airport to accommodate operations, so it was decommissioned. This former runway is currently utilized by local and regional police and fire departments for vehicle training.

Primary Runway 17-35 has been extended by 900 feet to the south, bringing the total runway length to 5,900 feet. In the 1990s it was determined that crosswind Runway 9-27 was needed only to serve small aircraft; therefore, the runway was shortened to 3,545 feet in length and narrowed to 75 feet in width. This also eliminated the crossing of the runways. A precision approach Instrument Landing System (ILS) was installed in 1984 on Runway 17.

Most of the airport is in agricultural use for grass seed and row crop production. Venell Farms, located a short distance to the south of the airport boundary, has been farming the available space at the airport since the late 1940s.

Since 1951, the airport has received just over $9.0 million in federal development funds for various airport improvements. Recent projects include expansion of the west side of the main apron, various fencing projects, rehabilitation of the runways and taxiways, construction of a portion of Taxiway B, and land acquisition. **Table 1A** presents a history of projects funded through federal development grants.

The airport has also benefited from investments from the State of Oregon. The state-run pavement maintenance program has invested funds to rehabilitate various pavement surfaces. Traditionally, the state has covered 75 percent of the costs with the 25 percent local match coming from FAA Non-Primary Entitlement (NPE) funds.

The airport has submitted an application to ConnectOregon IV for a total of $1,739,000 for three projects. The first is $461,000 for the construction of a loading dock at the terminus of the railroad spur. The second is $709,000 for the construction of an air freight transfer facility and apron and access road improvement. The third is $569,000 for rehabilitation of the main hangar.

**TABLE 1A**
**Federal Airport Development Grants Received**
**Corvallis Municipal Airport**

| Year | Project Number | Description | Funding Source | Project Amount |
|---|---|---|---|---|
| 1951 | 9-35-051-101 | Grade, drain and pave airport entrance road from 99W to terminal area. Remove timber bridge. | FAAP | $17,936 |
| 1957 | 9-35-051-0702 | Develop well, construct water tank and pump. | FAAP | $28,568 |
| 1961 | 9-35-051-6203 | Land acquisition (Parcels 1 & 2 of Area 2); Install water main & hydrants for fire protection. | FAAP | $14,203 |
| 1963 | 9-35-051-C304 | Install airport beacon and tower. 12' lighted windcone, controlled wind tee, including power and controls, construct segmented circle. | FAAP | $12,295 |
| 1974 | 7-41-0014-01 | Mark both runways; mark taxiways (approx. 11,600 l.f.). | ADAP | $5,482 |
| 1981 | 5-41-0014-02 | Acquire land, Area B; relocate road; obstruction removal; reconstruct, strengthen Rwy 17-35; modify MIRL Rwy 17-35. | ADAP | $681,440 |
| | A-41-0041-01 | Airport Master Plan. | PGP | $42,142 |
| 1984 | 3-41-0014-01 | Strengthen Rwy 17-35. | AIP | $241,749 |
| 1987 | 3-41-0014-02 | Construct and mark parallel taxiway to Rwy 17-35; install fencing. | AIP | $785,109 |
| 1989 | 3-41-0014-03 | Install apron lighting; Install visual approach aid; relocate windsock and wind tee; install taxiway hold signs; displace threshold to Runway 27. | AIP | $138,935 |
| 1990 | 3-41-0014-04 | Master plan update and environmental assessment. | AIP | $72,000 |
| 1993 | 3-41-0014-05 | Rwy 17-35 extension (835'x150'), including extension of MIRL; relocate VASI and REIL; extend Taxiway B; rehabilitate Taxiway A and B (design only); install signs. | AIP | $374,362 |
| 1994 | 3-41-0014-06 | Rwy 17-35 extension (835'x150'), including extension of MIRL; extend parallel taxiway; construct electrical vault; relocate VASI and REIL Rwy 35 end; reconstruct taxiways A & B; revise ALP. | AIP | $1,512,723 |
| 1997 | 3-41-0014-07 | Rehabilitate Rwy 9-27; install MIRL Rwy 9-27; construct taxiway A2; acquire avigation easements (Parcels A,B,&C); install perimeter fencing (9,700 l.f.); revise ALP. | AIP | $1,102,120 |
| 2000 | 3-41-0014-08 | Master Plan Update. | AIP | $95,131 |
| 2002 | 3-41-0014-09 | Rehabilitate taxiway and taxilane; expand helipad. | AIP | $431,593 |
| 2003 | 3-41-0014-010 | Relocate and reconstruct beacon; extend Taxiway B, widen Taxiway A; install MITL Taxiways A & B; install perimeter fencing; update ALP. | AIP | $1,064,249 |
| 2005 | 3-41-0014-011 | Rehabilitate Rwy 17-35 (design only) (Phase 1); rehabilitate Rwy 9-27 (PMP match, including crack seal). | AIP | $299,113 |
| 2005 | 3-41-0014-012 | Rehabilitate Rwy 17-35 (Phase 2). | AIP | $1,672,107 |
| 2008 | 3-41-0014-013 | Construct west side apron, including revising as build ALP (Phase 1); relocate/extend perimeter fence (Phase 1), including design. | AIP | $334,379 |
| 2008 | 3-41-0014-014 | Construct west side apron (Phase 2). | AIP | $66,548 |
| 2010 | 3-41-0014-015 | Relocate and extend westside fencing (Phase 2). | AIP | $80,000 |
| 2011 | 3-41-0014-016 | Update Airport Master Plan. | AIP | $249,900 |
| | | | **TOTAL** | **$9,322,084** |

Definitions:
FAAP: Federal Aid Airport Program
ADAP: Airport Development Aid Program
PGP: Planning Grant Program
AIP: Airport Improvement Program

*Source: Airport records*

## AIRPORT ADMINISTRATION

Corvallis Municipal Airport is owned and operated by the City of Corvallis. The airport falls under the responsibility of the Public Works Department, with an Airport Coordinator serving as the primary airport contact. The city does not have an individual manager on-site at the airport. Customer interactions and daily operations are instead handled by Corvallis Aero Service, the fixed base operator (FBO). Corvallis Aero Service is a full service FBO providing fuel, hangar rental, aircraft tie-down space, maintenance, annual inspections, catering services, pilots' lounge, courtesy car, aircraft charters, aircraft sales, flight training, and supplies.

The city has created an Airport Commission that advises the City Council on matters concerning the management and control of the airport and on the planning of the Airport Industrial Park. The Commission recommends rules, regulations, and policies; participates in planning and land use reviews; reviews land leases; and develops strategies for the long-term financial stability of the airport. The Commission is comprised of eight members, six of whom reside in the City of Corvallis and two who are employed in the City or reside in the Urban Growth Boundary, and one City Council representative.

## REGIONAL CLIMATE

Weather conditions must be considered in the planning and development of an airport, as daily operations are affected by local weather patterns. Temperature is a significant factor in determining runway length needs, while local wind patterns (both direction and speed) dictate the optimal orientation of the runways.

Oregon's climate can mostly be classified as mild. Two major geographic features dominate the climate in the state: the Pacific Ocean and the Cascade Range. The mountains of the Cascade Range act as a divide between the western and eastern sides of the state. Statewide, the coldest day of the year tends to be around January 1. It takes about seven months to reach the warmest day of the year, typically around August 1. Throughout most of the state, summers tend to be sunny and dry.

West of the Cascade Range, winters are relatively mild and wet, with precipitation usually falling as rain in the lower elevations. The area's proximity to the Pacific Ocean means that temperatures are moderated and significant moisture comes from the ocean. Areas along the coast and in the Coast Range can receive upwards of 200 inches of rain annually, most of which falls from October to March. The Willamette Valley, home to about 70% of the state's population, receives about 40 to 50 inches of precipitation annually.

East of the Cascade Range, temperature is less moderated by the Pacific Ocean. Central Oregon is kept dry year-round by the rain shadow created by the Cascade Range, though most of the light precipitation that it does receive also falls between October and March. Temperatures vary more substantially in the central and eastern side of the state. The abundance of clear and calm nights allows the temperature to drop significantly at night, but temperatures can climb to well over 100°F in the daytime during the summer months.

Corvallis is located in west-central Oregon between the Pacific Ocean to the west and the Cascade Range to the east. As a result of its location, Corvallis experiences

year-round moderate to mild temperatures. The average high temperature ranges from 46.4° Fahrenheit (F) in December to 82.4°F in August. The average low temperatures range from 33.6°F in January to 51.8°F in July. Corvallis averages nearly 44 inches of rainfall annually, and approximately 6 inches of snowfall. Due to the moderate temperatures, snow usually melts quickly. **Table 1B** presents a summary of climate data for Corvallis, Oregon.

**TABLE 1B**
**Climate Summary**
**Corvallis, OR**

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| High Temp. Avg. (°F) | 47.0 | 51.0 | 56.1 | 60.7 | 67.1 | 73.4 | 81.2 | 82.4 | 77.1 | 65.4 | 52.9 | 46.4 |
| Low Temp. Avg. (°F) | 33.6 | 35.4 | 37.6 | 39.9 | 44.0 | 48.5 | 51.8 | 51.5 | 48.2 | 41.8 | 38.0 | 33.8 |
| Precip. Avg.(in.) | 6.46 | 5.71 | 4.59 | 2.98 | 2.30 | 1.46 | 0.57 | 0.73 | 1.47 | 3.02 | 6.94 | 7.43 |

*Source: Climatography of the United States No. 81 (30-years of data from 1971-2000)*

## AREA TRANSPORTATION MODES

Airports are a significant part of the national transportation infrastructure. Other modes of transportation can work in synergy with airports to promote access and economic development. The following discussion presents information related to the various transportation modes available in the Corvallis/Benton County area.

### Highways

Interstate 5 is situated approximately 10 miles to the east of Corvallis providing ready access to points north and south. Oregon Route 99W extends from McMinnville to the north through Corvallis, terminating south at Eugene. Oregon Route 20 provides access from Corvallis west to Newport Oregon, on the Pacific coast and east to Albany and points beyond. Oregon Route 34 provides the primary connection between Corvallis and Interstate 5; it then continues east to Lebanon, Oregon. Oregon Route 34 also extends west to Waldport on the coast.

### Rail

The Venell Farms Railroad Company (VFRC) railroad line is located just to the east of the airport. The railroad line had been abandoned for several years until it was purchased by Venell Farms, a prominent local agricultural company. Through agreement with the Albany and Eastern Railroad of Lebanon, approximately five miles of the line has been rehabilitated. The line now extends to just south of the airport at Llewellyn Road. Albany and Eastern Railroad operates on the line under contract with VFRC primarily to bring agricultural goods from south of Corvallis to market.

A spur from this line enters the Airport Industrial Park. As of 2011, the airport has invested in improving the tracks in order to facilitate rail associated economic development.

### Public Transit System

Long-distance bus service is provided by Greyhound. Local bus service is provided

by Corvallis Transit System (CTS). In 2011, voters approved an additional fee on monthly water bills allowing all bus service to become free of charge (fare-less). The system runs a total of eight daytime routes Monday through Saturday, covering most of the city and converging at the Downtown Transit Center. Additional commuter routes also run in the early morning and late afternoon on weekdays, and mid-morning and mid-afternoon on Saturdays. When Oregon State University is in session, CTS also runs the "Beaver Bus," a set of late-night routes running Thursday through Saturday. Two other short-distance inter-city buses, the Linn-Benton Loop (to Albany) and the Philomath Connection, also stop at the Downtown Transit Center.

There is no public bus route that extends to the airport. The South Corvallis/Western/OSU line extends south on Oregon Route 99W to Rivergreen Avenue, approximately 1.6 miles from Airport Avenue.

### Bicycle Access

Designated a "Bike-Friendly City," Corvallis has many miles of bike paths, trails, and roadside bicycle lanes. Many miles of mountain bike trails, ranging from easy to very technical abound in the outskirts of the city, with the highest concentration present in the Oregon State University research forest (MacDonald and Dunn forests). In 2011, the United States Census Bureau released data from the 2009 American Community Survey showing that, at 9.3 percent, Corvallis had the highest percentage of bicycle commuters of any city in the United States.

## *AREA LAND USE*

Land uses in the vicinity of the airport can have an impact on airport operations and growth potential. The following section identifies baseline information relating to both existing and future land uses in the vicinity of Corvallis Municipal Airport. By understanding the land use issues surrounding the airport, more appropriate recommendations can be made for the future of the airport.

### COMPATIBLE LAND USE

"Incompatible land uses and their impact on airport development are a continuing threat to airports nationwide. As the population of the State of Oregon continues to grow, so does the demand for space and, with it, the potential for incompatible land uses near airports. Consequently, it is important to properly manage land uses around the airport for the preservation of the state aviation system, and ultimately, the economic vitality of the state." (ODA Airport Land Use Compatibility Guidebook).

The Oregon Department of Aviation publishes and updates the *Airport Land Use Compatibility Guidebook*. This land use planning guidebook provides direction to any entity (typically cities and counties) that has an airport (or the airspace surrounding airports) within their jurisdiction. The document serves as a statewide planning tool providing the basis for future land use decisions regarding compatibility within airport planning areas.

Agricultural uses are located on all sides of the airport. To the immediate north of the airport terminal area is the Airport Industrial Park. This is a 220 acre portion of airport property that is intended for economic development and airport revenue support. To the north of the airport is some rural residential housing, mostly clustered around Oregon Route 99W.

## Federal Legislation and Regulation

There are numerous federal laws and regulations related to airport land use compatibility. Airports that accept federal development grants are required to make every reasonable effort to comply with the laws and regulations. The following is a summary of the federal laws and regulations related to land use compatibility surrounding airports.

*Airport and Airway Improvement Act of 1982 - United States Code (USC), Title 49*: Upon acceptance of Federal funds, this Act obligates the airport owners to operate and maintain the airport and comply with specific assurances, including maintenance of compatible land uses around airports. The implementation of this Act is handled through stipulations outlined in the grant documents signed by airport owners when they accept federal funds for a project.

*Objects Affecting Navigable Airspace - Federal Code of Federal Regulations (CFR) Title 14, Part 77*: This federal regulation establishes standards for determining obstructions in navigable airspace. It sets forth requirements for construction and alteration of structures (i.e., buildings, towers, etc.). It also provides for studies of obstructions to determine their effect on the safe and efficient use of airspace, as well as providing for public hearings regarding these obstructions, along with provisions for the creation of antenna farm areas. It also establishes methods of identifying surfaces that must be free from penetration by obstructions, including buildings, cranes, cell towers, etc., in the vicinity of an airport. This regulation is predominately concerned with airspace related issues. Implementation and enforcement of the elements contained in this regulation are a cooperative effort between the FAA and the individual state aviation agencies; in this instance, the Oregon Department of Aviation (ODA).

*Airport Land Use Compatibility Planning - FAA Advisory Circular (AC) 150/5060-6*: This document guides the development of a compatibility plan to ensure the environs surrounding an airport are not developed in a manner that could pose a risk to the airport's operations. This document specifically looks at land use and noise issues.

*Airport Master Plans - FAA Advisory Circular (AC) 150/5070-6A*: This document guides the development of airport master plans. The guiding principle of the airport planning process is to develop a safe and efficient airport through the use of acceptable standards. While there are many steps in the planning process, none of these steps should be treated in a piecemeal manner. The airside and landside issues must be equally evaluated to create a plan that provides for compatible airport and community development where possible.

*A Model Zoning Ordinance to Limit Height of Objects Around Airports FAA Advisory Circular (AC) 150/5190-4A*: This advisory circular concerns itself with developing zoning ordinances to control the height of objects. It is based upon the surfaces described in Subpart C of CFR Part 77, *Objects Affecting Navigable Airspace*. This document provides sample language and model ordinances for use by local airports.

*Airport Design - Advisory Circular (AC) 150/5300-13, Change 18*: This document provides the basic standards and recommendations for airport design. Topics include various runway and taxiway safety areas, the runway protection zones,

threshold siting surfaces, runway length, and facility separation standards.

*Grant Assurances*: Pursuant to the provisions of Title 49, U.S.C., subtitle VII, as amended, assurances are required to be submitted as part of a project application by sponsors requesting funds. Upon acceptance of the grant offer by the sponsor, these assurances are incorporated in, and become part of, the grant agreement. There are 39 grant assurances several of which address airport planning. The following are the primary land use compatibility grant assurances:

- Grant Assurance 21 requires, in part, that the sponsor:

  "…take appropriate action, to the extent reasonable, including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft."

- Grant Assurance 20 relates to an airport sponsor's obligation for hazard removal and mitigation to address potential obstructions to the airspace around the airport. Grant Assurance 20 states that the airport sponsor will:

  "…take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport (including established minimum flight altitudes) will be adequately cleared and protected by removing, lowering, relocating, marking, or lighting or otherwise mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards."

In addition to appropriate land use zoning, communities are responsible for protecting airports from obstruction to the airspace. Most communities develop height and hazard regulations surrounding airports.

**State Statutes and Regulations**

Since 1974, Oregon's Land Use Planning Act, embodied in Oregon Revised Statutes (ORS Chapter 197), has required all cities and counties to develop and adopt comprehensive plans. These plans must be updated through a process known as periodic review (ORS 197.682-650) to ensure that the plan continues to meet applicable statutes, administrative rules, and current laws and policies of the state of Oregon. **Exhibit 1B** graphically presents the relationship between the Statewide Land Use Program and Airports.

Oregon's land use planning program is predicated on conformance with the nineteen statewide planning goals and administrative rules (OARs) that implement these goals. Requirements for meeting these goals are elaborated in applicable state statutes and administrative rules and must be embodied in local comprehensive plans adopted by each county and city. Each of these local plans must be acknowledged by the state Land Conservation and Development Commission (LCDC) as in fact conforming to the goals, statutes, and rules.

One of these Goals (Goal 12, Transportation Planning) promotes the provision of a safe, convenient, and economic statewide transportation network, including passenger and freight air transportation. The goal is achieved by the creation of transportation system plans (TSPs).

Oregon Revised Statutes (ORS 197.628 et seq.) also require local governments to periodically review comprehensive plans and to implement land use regulations to ensure that they adequately provide "needed housing, employment, transportation and public facilities and services." Through the periodic review process, local governments work with the state Department of Land Conservation and Development (DLCD), the agency arm implementing policies established through DLCD, to update certain comprehensive plan elements (e.g., transportation plans) and/or regulations (e.g., airport compatibility zoning).

The need for periodic review is based upon a determination that there has been:

- A change in circumstances such that the local plan or land use regulations do not comply with statewide planning goals,
- The existing plan or regulations are not achieving the goals, or
- There are agency plans or programs that affect land use which require modification to local plans or regulations to assure compliance with the goals.

The following is a summary of the major state aviation planning statutes and regulations:

*Airport Planning Rule (APR)*: To aid in implementing Goal 12 and provisions for local government airport regulations outlined in ORS 836.600 et seq., the DLCD adopted the Airport Planning Rule (APR). Outlined in OAR Chapter 660, Division 13, the APR establishes a series of local government requirements pertaining to aviation facility planning. These include requirements to:

- Adopt comprehensive plan and land use regulations for airports to carry out the requirements established in the APR and applicable ORS;
- Map and provide supporting documentation to establish airport boundaries, identify existing and proposed facilities, site future expansion areas and/or airport uses, map airport safety and compatibility zones and imaginary surfaces, and delineate noise impact boundaries;
- Adopt an Airport Safety Overlay Zone prohibiting structures, trees, etc., from penetrating airport imaginary surfaces based upon FAA standards, and establish limited height exceptions and a means of approving variances when supported by the ODA and FAA;
- Develop compatibility standards to prohibit residential and public assembly uses within runway protection zones, limit certain uses within noise impact boundaries, limit outdoor lighting, prohibit new and expanded industrial uses that cause emissions hazardous to aviation, and require coordinated review with ODA of radio, TV, and cellular facilities proximate to airports;
- Regulate water impoundments (e.g., gravel pits) per ORS 836.623(2) through (6), and prohibit new landfills near airports per Oregon Department of Environmental Quality (DEQ) standards;
- Adopt land use regulations for non-towered airports authorizing various aviation and airport-related uses and activities, as well as forestry and agricultural uses;
- Allow certain industrial, manufacturing, and other uses within airport boundaries if they would result in no significant hazard or limitation on approved airport uses, and are con-

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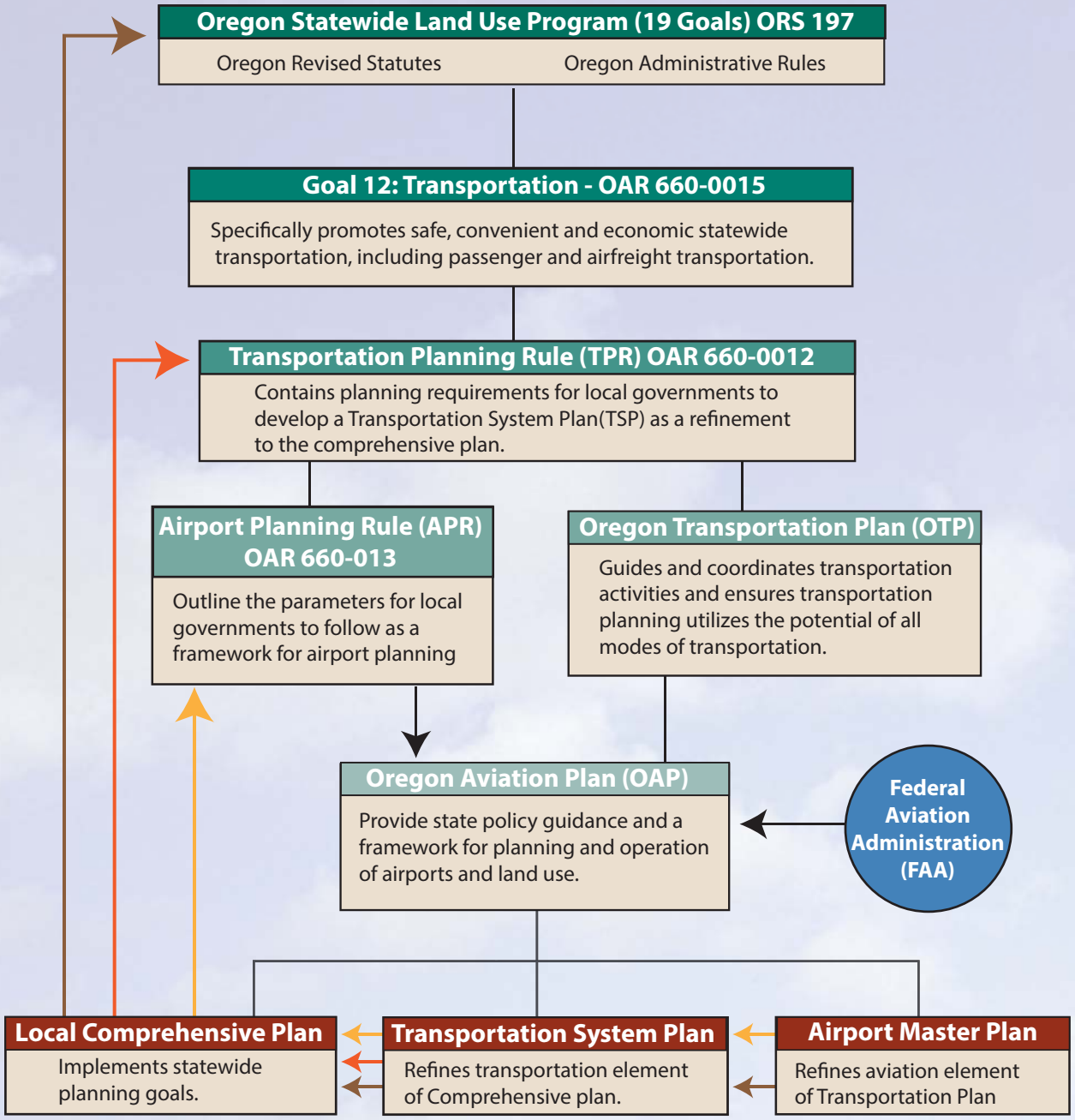
# Relationship Between the Statewide Land Use Program and Airports




**SOURCE:** *Airport Land Use Compatibility Guidebook, January 2003*

CORVALLIS MUNICIPAL AIRPORT

Exhibit 1B
STATE LAND USE
PROGRAM AND AIRPORTS

sistent with local comprehensive plans, statewide planning goals, and other OARs; and
- Update local plans and land use regulations to conform to the APR during periodic review or a TSP update, and ensure that future amendments to local plans and regulations also comply with provisions of the APR.

The APR serves as the state regulatory basis for ensuring that local government airport planning conforms to the hierarchy of state plans and statutory requirements (i.e., Goal 12, ORS 836.600 et seq., Oregon Transportation Plan, Oregon Aviation Plan). These rules outline the clear, comprehensive parameters for local governments to follow as a framework for airport planning.

*Transportation Planning Rule (TPR)*: The State Transportation Planning Rule (TPR, embodied in OAR Chapter 660, Division 12) contains planning requirements for local governments to develop TSPs as elements of comprehensive plans. These TSPs are required to contain elements intended to preserve local components of the state's public use aviation system, as identified in the 2007 Oregon Aviation Plan, as well as plan for multi-modal ground transportation system needs.

The TPR requires local jurisdictions to adopt land use regulations for land uses within airport noise corridors and CFR Part 77 imaginary surfaces and to restrict physical hazards to air navigation. Since publication of the 1994 *Oregon Airport Land Use Compatibility Guidebook*, several changes to the TPR were enacted that have bearing on airport planning. These changes include:

- OAR 660-012-0045(2), which requires local governments to adopt land use or subdivision ordinance regulations consistent with federal and state requirements that protect transportation facilities, corridors, and functions, including: controlling land uses within airport noise corridors and imaginary surfaces and limiting physical hazards to air navigation to protect public use airports; and
- Developing a process for coordinated review of future land use decisions affecting transportation corridors or facilities (including public use airports).

Therefore, these TPR standards obligate local governments through their TSP and comprehensive plan to protect public use airports from incompatible uses through planning and ongoing review of local land use decisions on development proposals that could impact airport facilities.

OAR 660-012-0065(3), which allows for expansions or alterations of public use airports without having to seek exceptions from certain statewide planning goals (Goals 3, 4, 11, and 14), when the expansion or alteration does not change the design class of aircraft planned for the subject airport. This standard significantly streamlines the approval process for certain types of airport expansions and modifications on rural lands surrounding airports.

*Notice Requirements*: ORS 197.183 requires local governments to provide notice to the Oregon Department of Aviation when applications are received for water impoundments (e.g., new gravel pits) larger than ¼ acre in size located within 10,000 feet of an airport identified in ORS 836.610(1). Standards in ORS 836.623 outline the local government responsibilities for approving or denying such impoundments.

Implementing state statutes (ORS 215.223, 215.416, and 227.175) and administrative rules (OAR 738-100-0010) also require local planning authorities to send notice of public hearings and decisions on land use permits or zone changes to owners of public use airports and to the Oregon Department of Aviation when the subject property is within 5,000 feet of the sides or ends of a runway on a visual airport, or 10,000 feet on an instrument airport. Notice need not be provided if the permit or zone change would allow a structure of less than 35 feet in height and the property is located outside the runway approach surface or on property owned by the airport.

*Airport Land Use Compatibility Guidebook*

The *Airport Land Use Compatibility Guidebook* is published by the Oregon Department of Aviation and enforced by state statute. The *Guidebook* is an essential tool for local governments to reference when undertaking airport compatibility issues. The Guidebook specifically outlines 11 activities that are permissible on airport property at non-towered airports. The following is quoted directly from Appendix A of the *Guidebook*:

Local government shall adopt land use regulations for areas within the airport boundary of non-towered airports identified in ORS 836.610(1) that authorize the following uses and activities:

(1) Customary and usual aviation-related activities including but not limited to takeoffs, landings, aircraft hangars, tiedowns, construction and maintenance of airport facilities, fixed-base operator facilities, a residence for an airport caretaker or security officer, and other activities incidental to the normal operation of an airport. Residential, commercial, industrial, manufacturing, and other uses, except as provided in this rule, are not customary and usual aviation-related activities and may only be authorized pursuant to OAR 660-013-0110.

(2) Emergency Medical Flight Services, including activities, aircraft, accessory structures, and other facilities necessary to support emergency transportation for medical purposes. "Emergency Medical Flight Services" does not include hospitals, medical offices, medical labs, medical equipment sales, and similar uses.

(3) Law Enforcement and Firefighting Activities, including aircraft and ground based activities, facilities and accessory structures necessary to support federal, state or local law enforcement and land management agencies engaged in law enforcement or firefighting activities. These activities include transport of personnel, aerial observation, and transport of equipment, water, fire retardant and supplies.

(4) Flight Instruction, including activities, facilities, and accessory structures located at airport sites that provide education and training directly related to aeronautical activities. "Flight Instruction" does not include schools for flight attendants, ticket agents, or similar personnel.

(5) Aircraft Service, Maintenance and Training, including activities, facilities, and accessory structures provided to teach aircraft service and maintenance skills, maintain, service and repair aircraft and aircraft components, but not including activities, structures, and facilities for the manufacturing of aircraft for sale to the public or the manufacturing of aircraft related products for sale to the public. "Aircraft Service, Maintenance and Training" includes the construction of aircraft

and aircraft components for personal use. The assembly of aircraft and aircraft components is allowed as part of servicing, maintaining, or repairing aircraft and aircraft components.

(6) Aircraft Rental, including activities, facilities, and accessory structures that support the provision of aircraft for rent or lease to the public.

(7) Aircraft Sales and the sale of aeronautic equipment and supplies, including activities, facilities, and accessory structures for the storage, display, demonstration and sale of aircraft and aeronautic equipment and supplies to the public.

(8) Aeronautic Recreational and Sporting Activities, including activities, facilities and accessory structures at airports that support recreational use of aircraft and sporting activities that require the use of aircraft or other devices used and intended for use in flight. Aeronautic Recreation and Sporting Activities on airport property shall be subject to approval of the airport sponsor. Aeronautic recreation and sporting activities include but are not limited to: fly-ins; glider flights; hot air ballooning; ultralight aircraft flights; displays of aircraft; aeronautic flight skills contests; gyrocopter flights; flights carrying parachutists; and parachute drops onto an airport. As used in this rule, parachuting and parachute drops includes all forms of skydiving. Parachuting businesses may be allowed only where they have secured approval to use a drop zone that is at least 10 contiguous acres. A local government may establish a larger size for the required drop zone where evidence of missed landings and dropped equipment supports the need for the larger area. The configuration of 10 acre minimum drop zone shall roughly approximate a square or circle and may contain structures, trees, or other obstacles if the remainder of the drop zone provides adequate areas for parachutists to safely land.

(9) Crop Dusting Activities, including activities, facilities and accessory structures to crop dusting operations. These include, but are not limited to: aerial application of chemicals, seed, fertilizer, pesticide, defoliant and other activities and chemicals used in a commercial agricultural, forestry or rangeland management setting.

(10) Agricultural and Forestry Activities, including activities, facilities and accessory structures that qualify as a "farm use" as defined in ORS 215.203 or "farming practice" as defined in ORS 30.930.

(11) Air passenger and air freight services and facilities at public use airports at levels consistent with the classification and needs identified in the state ASP.

## CURRENT LAND USE PLANNING AND ZONING

Both the City of Corvallis and Benton County have, to some degree, made efforts to protect the future viability of the airport through land use planning. There are some challenges to these efforts as the airport is owned and operated by the City of Corvallis but it is not within the city limits; instead it is physically within Benton County. The following sections describe the land use planning efforts surrounding the airport as they exist today (2011).

**City of Corvallis**

The airport is not within the City of Corvallis city limits, but it is located within the Urban Growth Boundary. The City is allowed to develop land use plans for the Urban Growth Boundary, but it is not allowed to institute legally binding zoning regulations for the land. The City of Corvallis Comprehensive Plan provides for various land uses surrounding the airport as shown on **Exhibit 1C**.

As can be seen, the runway and taxiway system is designated for Public Institutional uses. Use as an airport is permitted. The landside facilities between Taxiway A and Airport Avenue are designated for General Industrial uses. The Airport Industrial Park has several land use designations, including Intensive Industrial, General Industrial, Mixed Use Employment, Mixed Use Commercial and Limited Industrial Office.

**Benton County**

Benton County has the zoning authority for land within the county. The airside portion (runways and taxiways) of the airport, areas south of Taxiway A, is zoned for Public uses, including operation of an airport. The areas north of Taxiway A, including the Airport Industrial Park, as well as some property north of the Airport Industrial Park, are zoned for Urban Industrial uses. Adjacent to Oregon Route 99W, zoning includes Urban Industrial/Flexible Industrial Overlay, Urban Industrial, and Residential. The residential zoning is east of Oregon Route 99W. The Benton County zoning in the airport area is depicted on **Exhibit 1D**.

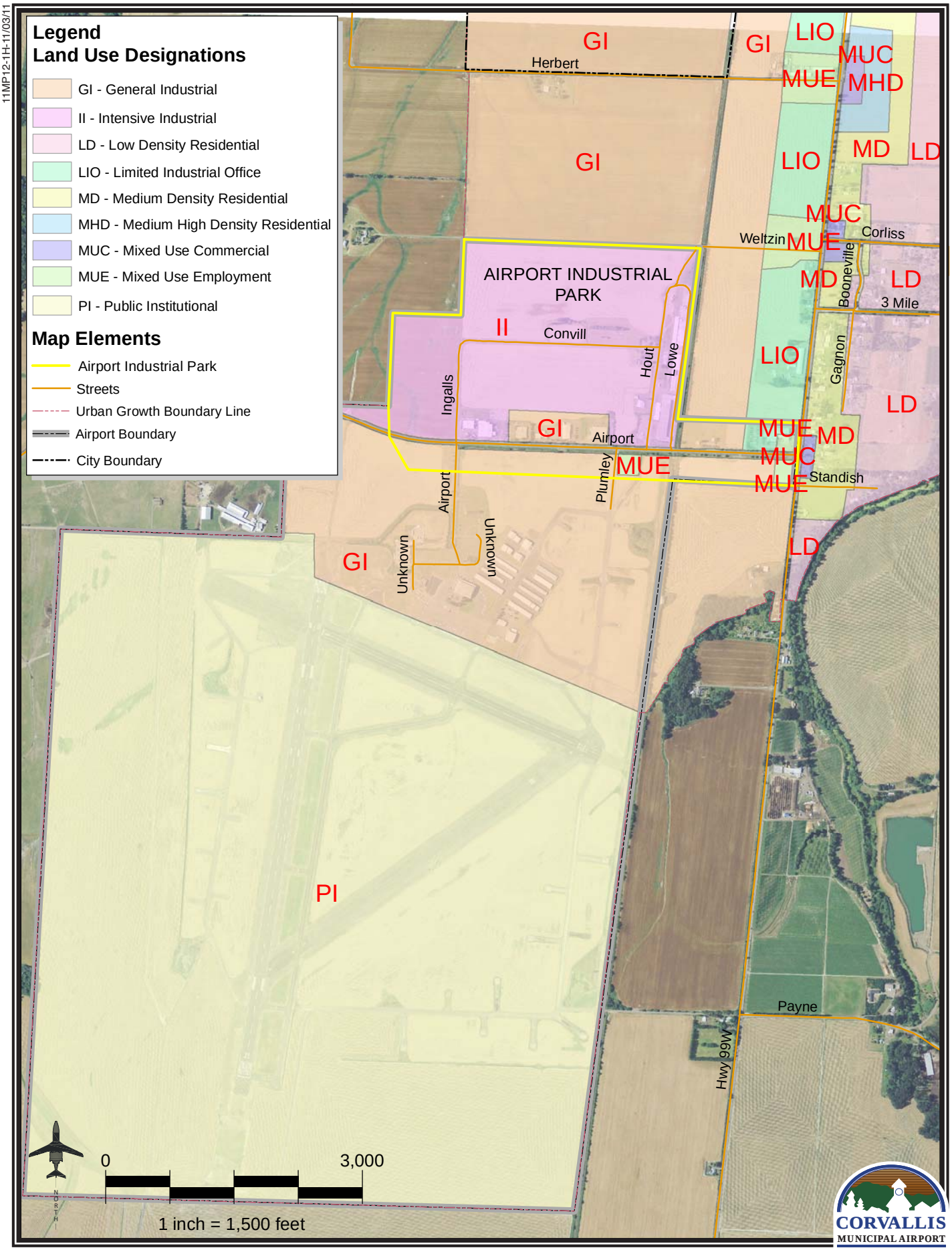
Benton County has also developed an Airport Overlay Zone which is contained in the Benton County Development Code. The purpose of the overlay zone, as described in the Development Code, is to "enhance the utility of the Corvallis Municipal Airport by preventing the establishment of any structure or use of land which unreasonably obstructs the airspace required for the safe flight of aircraft in landing or taking off or is otherwise hazardous to such landing or taking off of aircraft."

The Airport Overlay Zone was developed based on the 1990 Airport Master Plan recommendations. The standards for definitions of airport airspace, as described in 14 *CFR, Part 77, Objects Affecting Navigable Airspace*, have been updated since this time. In addition, adjustments have been made to the runway system, including shortening Runway 9-27. Since the overlay zone is based on various airspace components surrounding the runway system, the current Airport Overlay Zone is out of date. As part of this Airport Master Plan, the Airport Airspace Drawing contained within the Airport Layout Plan (ALP) set, will be updated. From this drawing, the county will be in a position to update the Airport Overlay Zone.

The Airport Overlay Zone provides height and hazard restrictions in the vicinity of the airport as well as land use restrictions. The existing Airport Overlay Zone is described in **Appendix B** and depicted on **Exhibit 1E**. The updated Airport Airspace Drawing will be included as an appendix at the conclusion of the study.

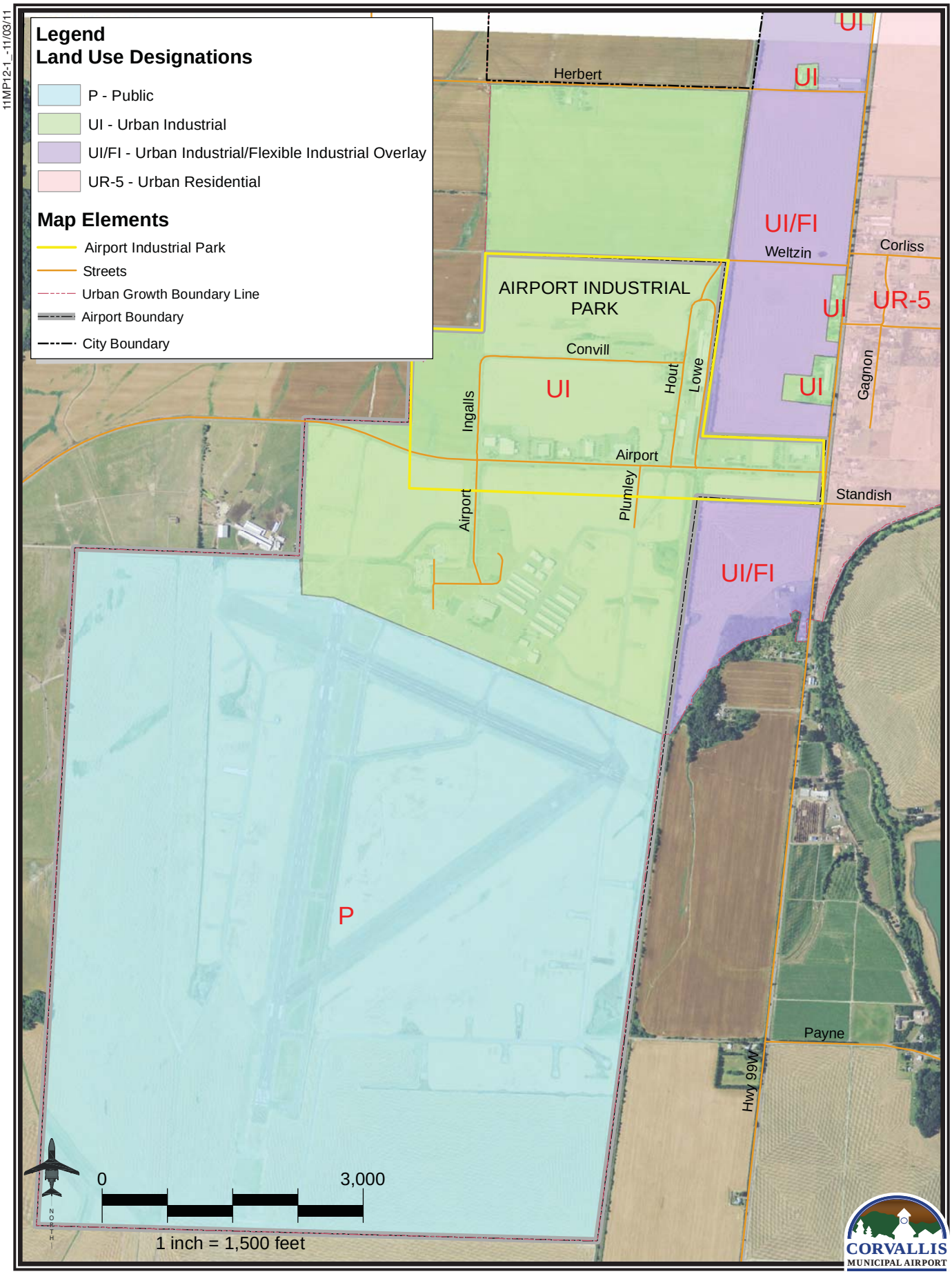
## *AIRPORT SYSTEM PLANNING ROLE*

Airport planning exists on many levels: national, state, and local. Each level has a different emphasis and purpose. On the national level, the Corvallis Municipal Airport is included in the *National Plan of Integrated Airport Systems* (NPIAS). On the state level, the airport is included in




*Source: Corvallis Comprehensive Plan*

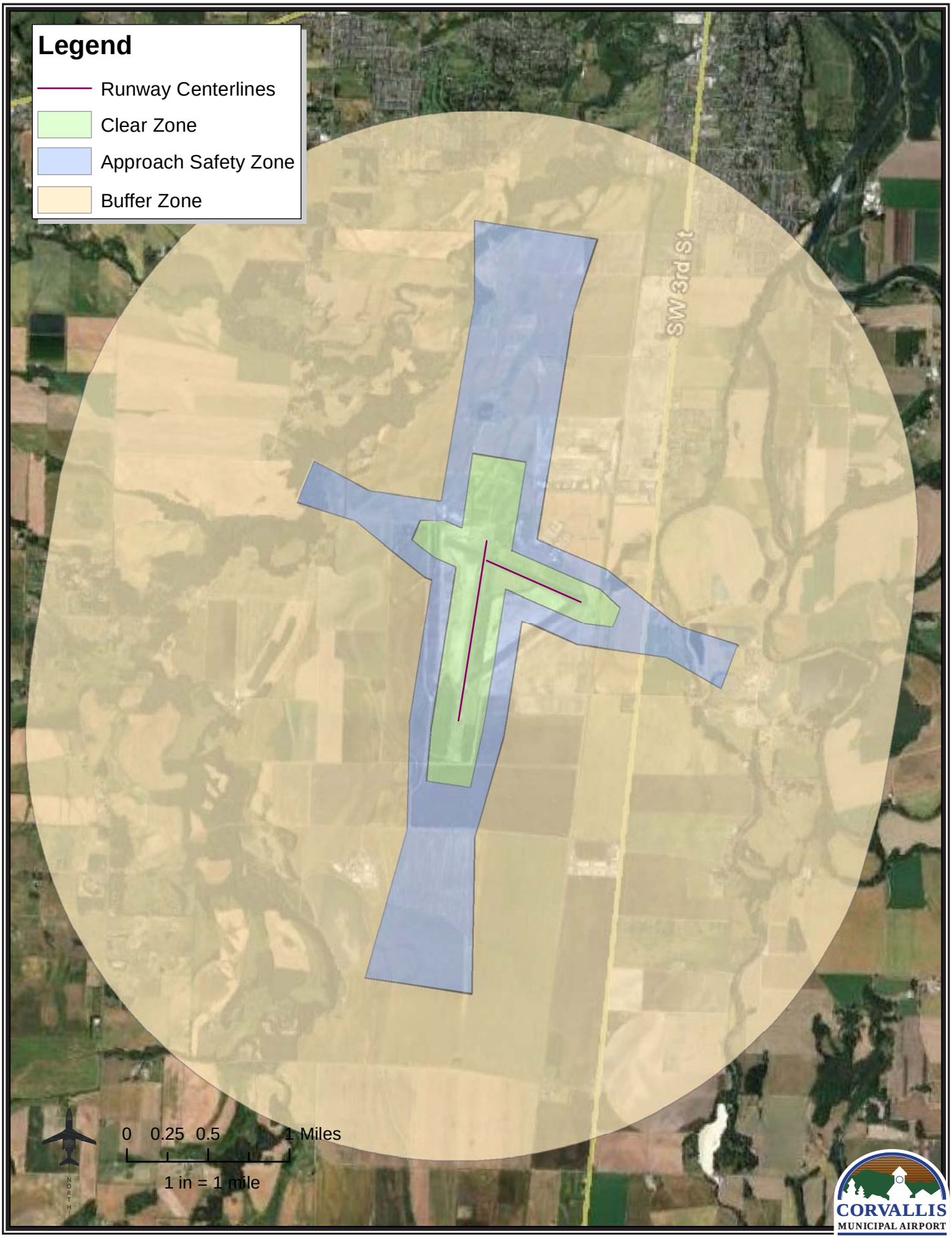
Exhibit 1C
CORVALLIS AIRPORT AREA LAND USE PLAN




*Source: Benton County Development Code*

Exhibit 1D
BENTON COUNTY AIRPORT AREA DEVELOPMENT PLAN

11MP12-1D-11/03/11




CORVALLIS MUNICIPAL AIRPORT

*Source: Benton County GIS Department*
*Aerial: 7.8.2010 - Google Earth*

Exhibit 1E
EXISTING AIRPORT OVERLAY ZONES

*Oregon Aviation Plan* (2007) (OAP 2007). The local planning document is the Airport Master Plan and associated ALP which were last updated in 2001.

## FEDERAL AIRPORT PLANNING

On the national level, the Corvallis Municipal Airport is included in the NPIAS as a general aviation facility. This federal plan identifies 3,332 existing airports which are considered significant to the national air transportation system. The NPIAS is published and used by the FAA in administering the Airport Improvement Program (AIP), which is the source of federal funds for airport improvement projects across the country. The AIP program is funded exclusively by user fees and user taxes, such as those on fuel and airline tickets. The 2011-2015 NPIAS estimates $52.2 billion is needed for airport development across the country over the next five years. An airport must be included in the NPIAS to be eligible for federal funding assistance through the AIP.

The NPIAS supports the FAA's strategic goals for safety, system efficiency, and environmental compatibility by identifying specific airport improvements. The current issue of the NPIAS identifies approximately $11.5 million in development needs over the next five years for Corvallis Municipal Airport. This figure is not a guarantee of federal funding; instead, this figure represents development needs as presented to the FAA by the City of Corvallis in the annual airport capital improvement program.

Airports that apply for and accept AIP grants must adhere to various grant assurances. These assurances include maintaining the airport facility safely and efficiently in accordance with specific conditions. The duration of the assurances depends on the type of air-port, the useful life of the facility being developed, and other factors. Typically, the useful life for an airport development project is a minimum of 20 years. Thus, when an airport accepts AIP grants, they are obligated to maintain that facility in accordance with FAA standards for at least that long.

Of the $52.2 billion in airport development needs nationally, approximately 28.6 percent is designated for 2,829 general aviation airports (includes reliever airports), as shown in **Table 1C**. General aviation airports average 31 based aircraft and account for 34.4 percent of the nation's general aviation fleet. Reliever general aviation airports average 186 based aircraft and account for 21.9 percent of the nation's based aircraft. Corvallis Municipal Airport is designated as a general aviation airport.

**TABLE 1C**
**NPIAS Distribution of Activity**

| Number of Airports | Airport Type | % of Enplanements | % of Based Aircraft | % NPIAS Costs |
|---|---|---|---|---|
| 29 | Large Hub Primary Commercial | 68.00 | 0.07 | 33.8 |
| 37 | Medium Hub Primary Commercial | 20.00 | 2.1 | 14.1 |
| 72 | Small Hub Primary Commercial | 8.00 | 4 | 8.6 |
| 244 | Nonhub Primary Commercial | 3.00 | 10.1 | 11.3 |
| 121 | Nonprimary Commercial | 0.01 | 1.6 | 1.9 |
| **503** | **Total Commercial Service Airports** | **99.01** | **17.87** | **69.70** |
| 269 | Relievers | 0.00 | 21.9 | 7.2 |
| 2,560 | General Aviation | 0.00 | 34.4 | 21.4 |
| **3,332** | **Existing NPIAS Airports** | **99.10** | **74.8** | **98.3** |
| **16,402** | **Non-NPIAS Airports** | **0.90** | **25.2** | **NA** |

*Source: 2011-2015 National Plan of Integrated Airport Systems (NPIAS)*

## STATE AIRPORT PLANNING

Corvallis Municipal Airport is included in the *Oregon Aviation Plan 2007* (OAP). The OAP is a comprehensive evaluation of Oregon's aviation system and serves as a guide for future aviation development. The OAP defines the specific role of each airport in the state's aviation system and establishes funding and development needs. The OAP is periodically updated, with the current version having been completed in 2007. Corvallis Municipal Airport is one of 97 public use airports within the state's aviation system plan.

The State of Oregon categorizes public use airports by functional classification. They utilized the FAA's Airport Reference Code classification system (described in detail in Chapter Three - Facility Requirements), which is based on operational and physical criteria, and developed a unique set of performance measures to clearly demonstrate the types of facilities and services that should be provided at each airport category. The five airport classifications in the state are defined as follows:

### Category I – Commercial Service Airports

These airports support some level of scheduled commercial airline service in addition to a full range of general aviation aircraft. This includes both domestic and international destinations.

### Category II – Urban General Aviation Airports

These airports support all general aviation aircraft and accommodate corporate aviation activity, including business jets, helicopters, and other general aviation activity. The primary users are business related and service a large geographic region, or they experience high levels of general aviation activity.

### Category III – Regional General Aviation Airports

These airports support most twin and single engine aircraft, may accommodate occasional business jets, and support regional transportation needs.

### Category IV – Local General Aviation Airports

These airports primarily support single engine, general aviation aircraft, but are capable of accommodating smaller twin-engine general aviation aircraft. They also support local air transportation needs and special use aviation activities.

### Category V – RAES (Remote Access/Emergency Service) Airports

These airports primarily support single engine, general aviation aircraft, special use aviation activities, and access to remote areas or provide emergency service access.

The Corvallis Municipal Airport is classified as an Urban General Aviation Airport in the *Oregon Aviation Plan 2007*. The applicable design and performance criteria are listed in **Table 1D**.

The *Oregon Aviation Plan 2007* identifies several design criteria for Urban General Aviation Airports where Corvallis Municipal Airport is deficient. The report indicates that there is not enough apron space to meet the minimum design criteria and that further study would be needed to specifically determine the need. As part of this Master Plan, an evaluation of the aircraft parking apron will be made.

The OAP 2007 recommends a dedicated airport terminal building. Corvallis does not have a terminal building, relying instead on facilities provided by the airport FBO. Consideration for a dedicated terminal building will be given in this Master Plan.

**TABLE 1D**
**Oregon Aviation Plan 2007**
**Design Criteria for Urban General Aviation Airports**

| | Minimum Criteria | Desired Criteria | Meets Criteria |
|---|---|---|---|
| **Airside Facilities** | | | |
| FAA-ARC | C-II | Varies | Yes |
| Runway Length | 5,000 | Varies | Yes |
| Runway Width | 100 | Varies | Yes |
| Pavement Type | Concrete or Asphalt | Concrete or Asphalt | Yes |
| Taxiways | Full Parallel | Full parallel/high speed exits | Yes |
| Approach Type | Precision | Precision | Yes |
| Visual Aids | One runway end | Both runway ends | Yes |
| Runway Lighting | MIRL | MIRL | Yes |
| Taxiway Lighting | MITL | MITL | Yes |
| **General Facilities** | | | |
| Rotating Beacon | Yes | Yes | Yes |
| Lighted Wind Indicator | Yes | Yes | Yes |
| Weather Reporting | AWOS/ASOS | AWOS/ASOS | Yes |
| Hangared Aircraft Storage | 75% of based aircraft | 100% of based aircraft | Yes |
| Apron Parking/Storage | 75% of daily transient | 100% of daily transient | No |
| Terminal Building | Yes | Yes | No |
| Auto Parking | Moderate | Adequate | Yes |
| Fencing | Perimeter | Perimeter | Partial |
| Cargo | Designated Apron Area | Small handling facility w/apron | No |
| **Services** | | | |
| Fuel | 100LL and Jet A | 100LL, Jet A, 24-hour | Yes |
| FBO | Full Service | Full service, 24-hour | Yes |
| Ground Transportation | Offsite rental car, taxi, or other | Rental car, taxi, or other | Yes |
| Food Service | Vending | Coffee shop/deli | No |
| Restrooms | Yes | Yes | Yes |
| Pilot Lounge | Yes w/ weather reporting station | Yes w/ weather reporting station | Yes |
| Snow Removal | Yes | Yes | Yes |
| Telephone | Yes | Yes | Yes |

*Source: Oregon Aviation Plan 2007*

Airports in the class of Corvallis Municipal Airport are recommended to have full perimeter fencing. Corvallis has terminal area fencing being six-foot high chain link with 3-strand barbed wire. This fencing extends along the north and east perimeter. There is no fencing along the west and south sides of the airport. Consideration will be given to full perimeter fencing at the airport.

Corvallis Municipal Airport is utilized by FedEx and UPS for air transportation of time-sensitive parcels. The OAP 2007 recommends that the airport have a dedicated ramp space for loading and unloading of these parcels to the aircraft, a Cessna Caravan. The airport submitted a grant request to the state through the ConnectOregon IV program for the construction of a dedicated cargo apron. The OAP 2007 further recommends a dedicated sort facility to facilitate air cargo operations. In the alternatives chapter of this Master Plan, suitable locations for a small sort facility will be identified.

Adequate food services are recommended in the OAP 2007. Corvallis Municipal Airport is identified as being deficient in the provision of this amenity. At a minimum, various vending machines should be made available. A small coffee shop or deli is the desired minimum criteria.

## LOCAL AIRPORT PLANNING

The Airport Master Plan is the primary local planning document. The Master Plan is intended to provide a 20-year vision for airport development based on aviation demand forecasts. Forecasts beyond five years become less reliable. The most recent aviation forecasts were prepared in 2001 in conjunction with an Airport Master Plan update. As a result, this is an appropriate time to update these forecasts and revisit the development assumptions from the previous planning study. The new forecasts of aviation demand for Corvallis Municipal Airport will be contained in Chapter Two.

## ECONOMIC IMPACT

In May 2007, the Oregon Department of Aviation (ODA) published the commissioned report, *Oregon Aviation Economic Impact Study*. The contributions of 91 airports under the jurisdiction of ODA and three airports under the jurisdiction of the Port of Portland were analyzed in the economic impact study. In 2005, the base year for the study, the system of 94 airports supported approximately 94,595 jobs, generated $2.8 billion in annual payroll, and produced $8.3 billion in annual economic activity.

Corvallis Municipal Airport is included in the study. It is estimated that the airport accounts for 848 local jobs, $25.1 million in wages, and $92.5 million in business sales. **Table 1E** presents detailed information related to the economic impacts of Corvallis Municipal Airport.

**TABLE 1E**
**2005 Economic Impact**
**Corvallis Municipal Airport**

| | Jobs | | Wages ($1,000s) | | Business Sales ($1,000s) | |
|---|---|---|---|---|---|---|
| **Impact Source** | **Local** | **State** | **Local** | **State** | **Local** | **State** |
| **Direct Effects of On-Airport Activities and Visitor Spending** | | | | | | |
| 1. On-Airport (FBO and tenants) | 134 | 134 | $4,563 | $4,563 | $12,973 | $12,973 |
| 2. Off-Airport: Visitor Spending | 33 | 33 | $468 | $464 | $1,565 | $1,553 |
| **Total Direct** | 167 | 166 | $5,031 | $5,027 | $14,538 | $14,526 |
| **Spin-off Effects of On-Airport Activities: Supplier and Income Re-spending** | | | | | | |
| 3. Due to Airport Aviation | 192 | 202 | $4,332 | $5,451 | $10,032 | $12,031 |
| 4. Due to Visitor Spending | 15 | 17 | $395 | $447 | $1,288 | $1,524 |
| **Total Spin-off** | 207 | 219 | $4,727 | $5,898 | $11,320 | $13,555 |
| **Total Airport Aviation Related Impacts** | **374** | **385** | **$9,758** | **$10,925** | **$25,858** | **$28,081** |
| **Total Airport Generated Impacts - Non-Aviation** | | | | | | |
| 5. On-Airport Non-aviation Activities | 189 | 189 | $7,136 | $7,136 | $38,596 | $38,596 |
| 6. Spin-offs due to Non-aviation Activities | 286 | 387 | $8,169 | $11,682 | $28,093 | $42,440 |
| **Total Airport Non-aviation Impacts** | **475** | **576** | **$15,305** | **$18,818** | **$66,689** | **$81,036** |
| **Total Aviation and Non-aviation Related** | **849** | **962** | **$25,063** | **$29,743** | **$92,547** | **$109,117** |

*Source: Economic Impact of Oregon's Aviation Industry by Economic Development Research Group for ODA 2007.*
*Note: The study had some revisions in 2008, increasing total wages and business sales slightly.*

## *AIRSIDE FACILITIES*

Airport facilities can be functionally classified into two broad categories: airside and landside. The airside category includes those facilities which are needed for the safe and efficient movement of aircraft, such as runways, taxiways, lighting, and navigational aids. The landside category includes facilities necessary to provide a safe transition from surface to-air transportation, including aprons, hangars, terminal buildings, and various other support facilities.

Existing airside facilities are identified on **Exhibit 1F**. **Table 1F** summarizes airside facility data for Corvallis Municipal Airport.

**TABLE 1F**
**Airside Facility Data**
**Corvallis Municipal Airport**

| | RUNWAY 17-35 | RUNWAY 9-27 |
|---|---|---|
| Runway Length | 5,900' | 3,545' |
| Runway Width | 150' | 75' |
| Runway Surface Material (Condition) | Asphalt (Good) | Asphalt (Good) |
| Runway Markings (Condition) | Non-Precision (35): (Good)/ Precision (17): (Good) | Basic (Good) |
| Runway Lighting | Medium Intensity (MIRL) | Medium Intensity (MIRL) |
| Runway Load Bearing Strength (pounds) | 35,000S/ 73,000D/ 100,000DT | 51,000S/ 65,000D/ 100,000DT |
| Taxiway Lighting | Medium Intensity (MITL) | Medium Intensity (MITL) |
| Taxiway, Taxi-lanes & Apron Lightning | Centerline marking, Tie-down area marking, Reflectors | |
| Traffic Pattern | Standard Left | Standard Left |
| Visual Approach Aids | VASI-4L (17-35)<br>REIL (35)<br>MALSR (17) | PAPI-4L (27) |
| Instrument Approach Aids | ILS (17)<br>RNAV - GPS (17-35)<br>VOR/DME (17-35)<br>NDB (17)<br>VOR-A (Circling) | VOR-A (Circling) |
| Weather and Navigational Aids | Automated Weather Observation System (AWOS-3)<br>Lighted Wind Cone<br>Segmented Circle<br>Wind Tee<br>Airport Beacon | |

PAPI - Precision Approach Path Indicator
GPS - Global Positioning System
VOR - Very High Frequency Omni-directional Range
MALSR - Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights
REIL - Runway End Identifier Lights
MIRL/MITL – Medium Intensity Runway/Taxiway Lighting
S/D/DT - Single Wheel Load/ Dual Wheel Load/Dual Tandem Wheel Load

*Source: Airport/Facility Directory - Northwest U.S. (October 20, 2011); Airport records.*

## RUNWAYS

Corvallis Municipal Airport is served by a two-runway system. The primary runway, Runway 17-35, is 5,900 feet long by 150 feet wide. The Runway 17 end has an elevation of 244.5 feet MSL, and the Runway 35 end is at 249.8 feet MSL. The runway has a longitudinal gradient of 0.1 percent. There is a 200-foot long blast pad on the Runway 35 end. It is estimated that this runway accommodates approximately 90 percent of annual aircraft operations.

Runway 17-35 is strength rated at 35,000 pounds for single wheel loads (S), 73,000 pounds for dual wheel loads (D), and 100,000 pounds for dual tandem wheel loads (DT). The strength rating refers to the weight of aircraft with certain landing gear configurations. Single wheel loads (S) refers to landing gear with a single wheel on each strut, while (D) refers to two wheels on the main landing gear. Runways can support infrequent operations by heavier aircraft.

Crosswind Runway 9-27 is 3,545 feet long and 75 feet wide. This runway is strength rated at 51,000 pounds (S), 65,000 pounds (D), and 100,000 pounds (DT). The Runway 9 end has an elevation of 245 feet MSL, and the Runway 27 end is 246.3 feet MSL. The runway has a longitudinal gradient of 0.1 percent. It is estimated that this runway accommodates 10 percent of annual aircraft operations.

Through interviews with airport operators and the FBO, overall runway usage has been estimated. Runway usage is utilized in airfield capacity and environmental (e.g., noise) modeling. It is estimated that 60 percent of operations are to Runway 17, 30 percent to Runway 35, nine percent to Runway 27, and one percent to Runway 9.

According to the airport master record (FAA Form 5010) as accessed from www.airnav.com, pilots should be aware of potential obstructions leading to the Runway 27 end. There is an active railroad track located approximately 380 feet from the Runway 27 landing threshold (200' displacement) which requires an 8:1 slope to clear. A second potential obstruction is described as a 44-foot tall tree (or stand of trees) located 850 feet from the threshold and 300 feet right of the extended runway centerline. A 19:1 approach ratio is recommended.

## PAVEMENT CONDITION

Every three years, the Oregon Department of Aviation performs inspections of the pavement conditions at the public use airports under its jurisdiction, including Corvallis Municipal Airport. The pavement maintenance management program was developed as part of the Oregon Continuous Aviation System Plan sponsored in part by the Oregon Department of Aviation and the FAA. The information and data generated ensures airport sponsors are in compliance with the requirements of FAA Grant Assurance Number 11, which states that any airport requesting federal funds for pavement improvement projects must have implemented a pavement maintenance management program.

The most recent inspection was in April 2008. The inspections are conducted in compliance with FAA Advisory Circular (AC) 150/5380-6, *Guidelines and Procedures for Maintenance of Airport Pavements*. The inspection data is entered into the MicroPAVER software program for

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CORVALLIS MUNICIPAL AIRPORT

Exhibit 1F
AIRSIDE FACILITIES

analysis. Maintaining a MicroPAVER database ensures that the airport complies with the "record keeping and information retrieval" requirements of the FAA grant assurances.

The MicroPAVER software program calculates a Pavement Condition Index (PCI) for each section of pavement on the airfield (runways, taxiways, and aprons). The program also generates forecasts of pavement condition five and 10 years into the future. The PCI values index ranges from 0 to 100, providing an indication of the overall condition of that section of pavement. For Category II airports such as Corvallis Municipal Airport, pavement condition becomes critical when the PCI falls below 65 for runways, 60 for taxiways, and 50 for aprons. The MicroPAVER software also produces detailed reports on what on-going routine maintenance should be performed in order to maintain these condition levels. The pavement condition index map for Corvallis Municipal Airport is presented on **Exhibit 1G**.

As of April 2008, all pavement composing the runways and taxiways were in "very good" or "excellent" condition. The main terminal area apron was in "good" condition. Over time, the pavements can be expected to deteriorate. By 2014, several of the taxilanes in the hangar development area may be in need of rehabilitation. By 2019, some of these taxilanes would fall below the critical PCI threshold. In addition, Taxiway B may also fall below the critical PCI threshold.

Generally, the condition of pavements at Corvallis Municipal Airport is adequate. The program provided by the Oregon Department of Aviation to monitor pavement condition is a significant asset to the state's system of airports. Continuous and on-going maintenance of the pavement at Corvallis Municipal Airport should provide a safe operating environment for aircraft for years to come.

**TAXIWAYS**

Taxiway A is parallel to Runway 9-27 at a separation distance of 550 feet. The west end of the taxiway provides access to the Runway 17 threshold. The east end tapers and provides access to the Runway 27 threshold. Taxiway A is 40 feet wide.

Taxiway B is parallel to Runway 17-35. That portion of Taxiway B that extends from the intersection with Taxiway A to the intersection with Runway 9-27 is 35 feet wide. The rest of Taxiway B extends from Runway 9-27 to the Runway 35 threshold and is 50 feet wide. There are three taxiways identified as B-2, B-3, and B-4 providing exits from Runway 17-35. Taxiway B-4 is also the threshold taxiway to Runway 35.

Taxiway C extends from the east end of the terminal apron, across Runway 9-27, then angles to the southwest and terminates at Runway 17-35. That portion of Taxiway C from the apron area to the intersection of Runway 9-27 is 40 feet wide. The rest of Taxiway C is 50 feet wide.

**PAVEMENT MARKINGS**

Pavement markings aid in the movement of aircraft along airport surfaces and identify closed or hazardous areas on the airport. Runway 17 has precision markings that include runway designations, threshold, fixed-distance aiming points, touchdown zone, edges, and centerline markings. Runway 35 has non-precision markings that include threshold, designa-

tion, centerline, and aiming point. Runway 9-27 provides basic markings which include the runway designations and runway centerline markings. The markings for both runways were new in 2009.

Taxiway and apron centerline markings assist pilots when moving on these surfaces. The taxiways have standard yellow centerline markings. The City of Corvallis re-marked the main terminal area apron in 2011.

## AIRFIELD LIGHTING

Airfield lighting systems extend an airport's usefulness into periods of darkness and/or poor visibility. A variety of lighting systems are installed at the airport for this purpose. These lighting systems, categorized by function, are summarized as follows:

**Identification Lighting**: The location of the airport at night is universally identified by a beacon. The rotating beacon projects two beams of light, one white and one green, 180 degrees apart. The beacon at Corvallis Municipal Airport is on the top of a 50-foot tall three-sided steel lattice structure located just to the west of the fuel farm.

**Runway and Taxiway Lighting**: Runway lighting utilizes light fixtures placed near the edge of the pavement to define the lateral limits of the pavement. This lighting is essential for safe operations during night and/or times of low visibility in order to maintain safe and efficient access to and from the runway and aircraft parking areas.

Both runways are equipped with medium intensity runway lighting (MIRL). These are lights set atop poles that are approximately one foot above the ground. The light poles are frangible, meaning if they are struck by an object, such as an aircraft wheel, they can easily break away, thus limiting the potential damage to an aircraft. The last 2,000 feet of runway edge lights on Runway 17-35 are yellow caution zone lights, and red threshold lighting identifies each runway end.

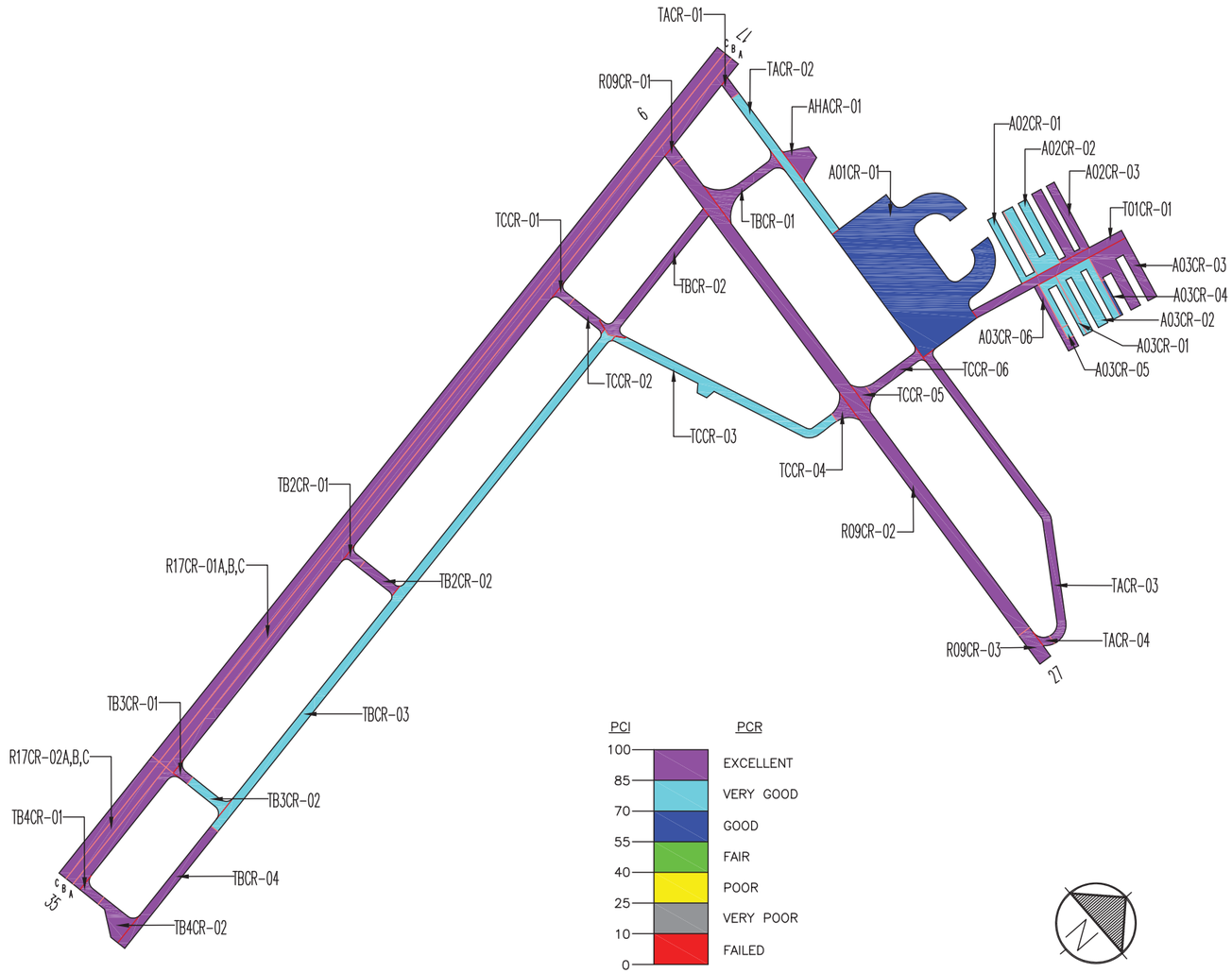
All taxiways are equipped with medium intensity taxiway lighting (MITL) except for two areas where blue reflectors are installed. The first location for taxiway reflectors extends on both sides of Taxiway A from the intersection with Taxiway C to the Runway 27 threshold. The second location of taxiway reflectors extends on both sides of Taxiway C from the terminal apron to the intersection with Taxiway B.

**Visual Approach Lighting**: Common visual approach aids include visual approach slope indicator (VASI) lights and precision approach path indicator (PAPI) lights. VASI are a staggered set of light boxes located to the side of the runway, and PAPIs are a set of non-staggered light boxes located to the side of the runway approximately 1,000 feet from the runway threshold. When interpreted by pilots, both VASIs and PAPIs give them an indication of being above, below, or on the correct descent path to the runway. Two-box systems are common for runways serving small aircraft. Runways utilized by faster jet aircraft are typically equipped with four-box systems. The standard is for VASIs and PAPIs to be set to the left side of the runway.

Both ends of Runway 17-35 are equipped with four-light VASIs. The VASIs are owned and maintained by the FAA. Runway 27 is equipped with a four-light PAPI.

11MP12-1G-11/08/11

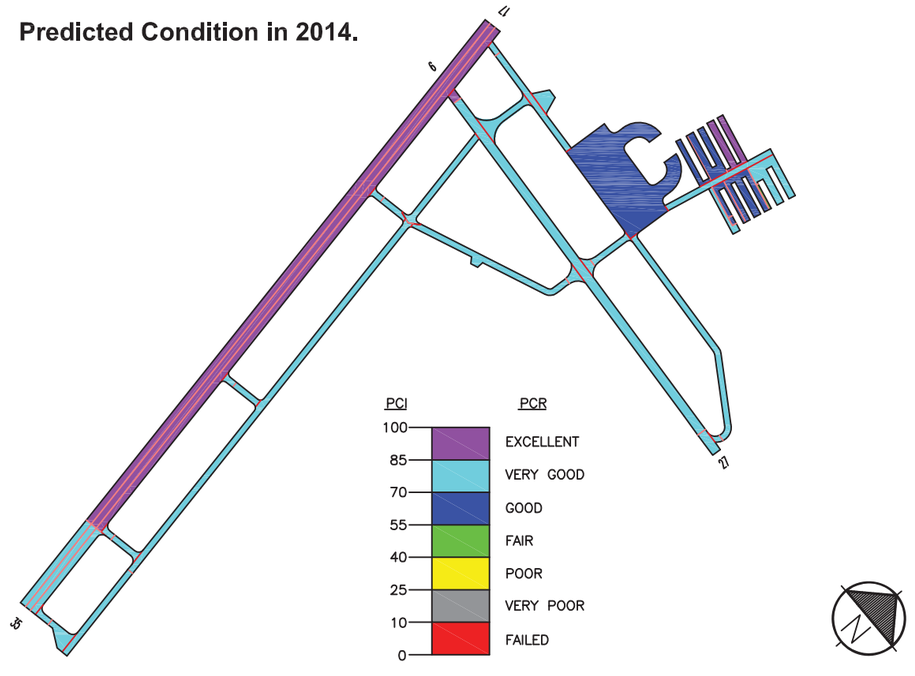
# Figure CR-3. Pavement Condition in April 2008. Corvallis Municipal Airport




PAVEMENT CONSULTANTS INC.

Drawing Date: April 2008

**Predicted Condition in 2014.**




**Predicted Condition in 2019.**

Drawing Date: April 2008

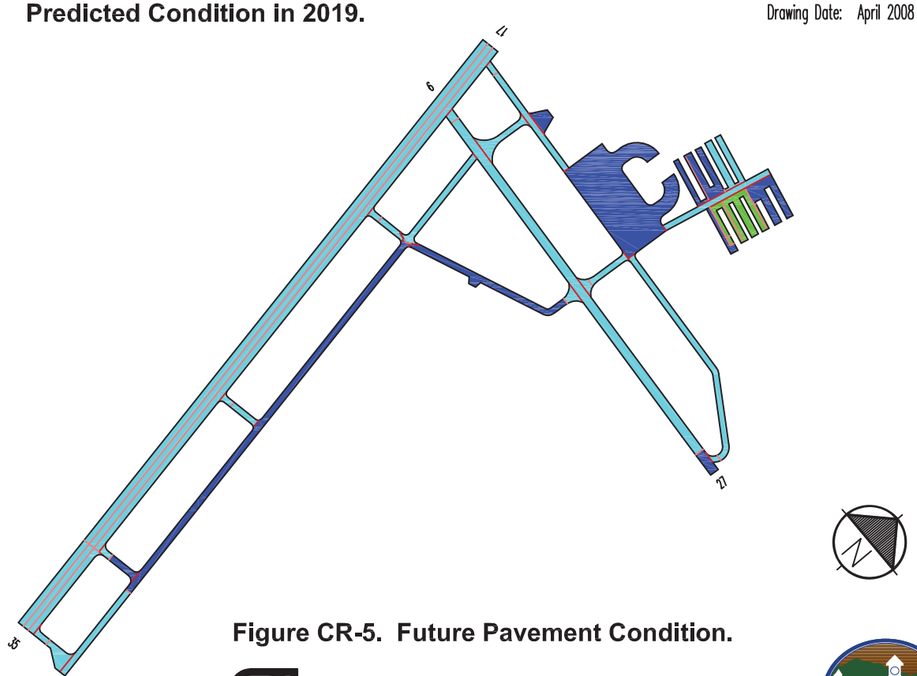



**Figure CR-5. Future Pavement Condition.**

PAVEMENT CONSULTANTS INC.

CORVALLIS MUNICIPAL AIRPORT

Exhibit 1G
PAVEMENT CONDITION

The PAPI is owned and maintained by the airport.

The approach to Runway 17 is equipped with a medium intensity approach lighting system with runway alignment indicator lights (MALSR). These lights extend approximately 1,400 feet from the Runway 17 threshold. This light system provides pilots rapid identification of the extended runway centerline and a visual lighted grid to align their aircraft for landing. The MALSR is owned and maintained by the FAA.

**Runway End Identification Lighting:** REILs provide a visual identification of the runway end for landing aircraft. The system consists of two flashing light assemblies located approximately 40 feet to either side of the runway landing threshold. These flashing lights can be seen day or night for up to 20 miles depending on visibility conditions. Runway ends serving jet aircraft but without an approach lighting system should be outfitted with REILs. Runway 35 is equipped with REILs which are owned and maintained by the FAA.

**Airfield Signs**: Airfield identification signs assist pilots in identifying their location on the airfield and directing them to their desired location. The airfield signs are located at various intersections at the airport. All airfield signs are lighted.

**Pilot-Controlled Lighting:** The airfield lights are turned off at nighttime. Pilots can utilize the pilot-controlled lighting system (PCL) to activate certain airfield lights from their aircraft through a series of clicks of their radio transmitter utilizing the CTAF frequency (123.0 MHz). The edge lights for the runways, as well as the MALSR and the Runway 35 REILs, are controllable through the system. Typically, the airfield lights will remain on for approximately 15 minutes.

**WEATHER AND COMMUNICATION AIDS**

Corvallis Municipal Airport has one lighted windsock centrally located adjacent to Taxiway C, between the two runways. The windsock provides information to pilots regarding wind conditions, including direction and speed. There is an additional unlit supplemental windsock located to the west of the Runway 35 threshold.

A segmented circle provides traffic pattern information to pilots. Corvallis Municipal Airport has a standard left hand traffic pattern for all runways. The segmented circle surrounds the lighted windsock. A lighted wind tee which provides directional information is also located within the segmented circle. The wind tee rotates depending on the direction of the wind, thereby providing pilots with a visual indication of the wind direction. At one point, the wind tee could be manually positioned through a control panel at the FBO, but this system is currently inoperable.

Corvallis Municipal Airport is equipped with an Automated Weather Observing System (AWOS-3). An AWOS will automatically record weather conditions such as wind speed, wind gust, wind direction, temperature, dew point, altimeter setting, visibility, fog/haze condition, precipitation, and cloud height. This information is then transmitted at regular intervals (usually every 20 seconds). Aircraft in the vicinity can receive this information if they have their radio tuned to the correct frequency (135.775 MHz). In addition, pilots and individuals can call a published telephone number (1-541-754-0081) and

receive the information via an automated voice recording.

Corvallis Municipal Airport also utilizes the common traffic advisory frequency (CTAF). This radio frequency (123.0 MHz) is used by pilots in the vicinity of the airport to communicate with each other about approaches or departures from the airport. This frequency is also utilized to contact the airport FBO (Universal Communications – UNICOM).

Approach and Departure Control services are available from the Cascade Air Route Traffic Control Center (ARTCC) via frequency 127.5 MHz. When Cascade is closed, Seattle ARTCC (frequency 125.8) provides area approach and departure services.

**NAVIGATIONAL AIDS**

Navigational aids are electronic devices that transmit radio frequencies, which pilots of properly equipped aircraft can translate into point-to-point guidance and position information. The types of electronic navigational aids available for aircraft flying in the vicinity of Corvallis Municipal Airport include a very high frequency omni-directional range (VOR) facility, a non-directional beacon, and the global positioning system (GPS).

The very high omni-directional range (VOR), in general, provides azimuth readings to pilots of properly equipped aircraft transmitting a radio signal at every degree to provide 360 individual navigational courses. Frequently, distance measuring equipment (DME) is combined with a VOR facility (VOR/DME) to provide distance as well as direction information to the pilot. Military tactical air navigation aids (TACANs) and civil VORs are commonly combined to form a VORTAC. The Corvallis VOR/DME is located on the airfield and is on frequency 115.4 MHz. The Eugene VORTAC is located approximately 23 nautical miles to the southeast of the airport and is on frequency 112.9 MHz.

The Lewisburg non-directional beacon (NDB) is located approximately seven nautical miles to the north of the airport. The FAA has been decommissioning NDBs in recent years as GPS and other technology have advanced.

GPS is an additional navigational aid for pilots. GPS was initially developed by the United States Department of Defense for military navigation around the world. GPS differs from a VOR in that pilots are not required to navigate using a specific ground-based facility. GPS uses satellites placed in orbit around the earth that transmit electronic radio signals, which pilots of properly equipped aircraft use to determine altitude, speed, and other navigational information. With GPS, pilots can navigate directly to any air-port in the country and are not required to navigate using a ground-based navigational facility.

The airport has several pieces of equipment on the airfield that assist pilots desiring to land at the airport. Runway 17 has an Instrument Landing System (ILS) that consists of a localizer and a glideslope antenna. The localizer antenna is located approximately 1,300 feet south of the Runway 35 threshold. The glideslope antenna is located approximately 800 feet from the Runway 17 threshold and 400 feet to the right of centerline.

**AREA AIRSPACE**

The Federal Aviation Administration (FAA) Act of 1958 established the FAA as the responsible agency for the control and use of navigable airspace within the United States. The FAA has established the National Airspace System (NAS) to protect persons and property on the ground and to establish a safe environment for civil, commercial, and military aviation. The NAS is defined as the common network of U.S. airspace, including air navigational facilities; airports and landing areas; aeronautical charts; associated rules, regulations, and procedures; technical information; and personnel and material. System components shared jointly with the military are also included as part of this system.

To ensure a safe and efficient airspace environment for all aspects of aviation, the FAA has established an airspace structure that regulates and establishes procedures for aircraft using the NAS. The U.S. airspace structure provides for categories of airspace, controlled and uncontrolled, and identifies them as Classes A, B, C, D, E, and G as described below. **Exhibit 1H** generally illustrates each airspace type in three-dimensional form.

- Class A airspace is controlled airspace and includes all airspace from 18,000 feet MSL to Flight Level 600 (approximately 60,000 feet MSL).

- Class B airspace is controlled airspace surrounding high-activity commercial service airports (i.e., Seattle-Tacoma International Airport).

- Class C airspace is controlled airspace surrounding lower-activity commercial service (i.e., Portland International Airport) and some military airports.

- Class D airspace is controlled airspace surrounding low-activity commercial service and general aviation airports with an ATCT, such as Mahlon Sweet Field in Eugene.

All aircraft operating within Classes A, B, C, and D airspace must be in constant contact with the air traffic control facility responsible for that particular airspace sector.

- Class E airspace is controlled airspace surrounding an airport that encompasses all instrument approach procedures and low-altitude federal airways. Only aircraft conducting instrument flights are required to be in contact with air traffic control when operating in Class E airspace. While aircraft conducting visual flights in Class E airspace are not required to be in radio contact with air traffic control facilities, visual flight can only be conducted if minimum visibility and cloud ceilings exist.

- Class G airspace is uncontrolled airspace that does not require communication with an air traffic control facility.

Airspace within the vicinity of Corvallis Municipal Airport is depicted on **Exhibit 1J**. The airport operates in Class G airspace from the ground to a ceiling of 700 feet above ground level (AGL). From 700 feet to 18,000 feet MSL the airport is in Class E airspace. It should be noted that traditional transponder contact with air traffic control is not available below approximately 1,200 feet in the airport vicinity.

**Victor Airways**

Victor Airways are designated navigational routes extending between VOR facilities. Victor Airways are identified on sectional charges with a "V" followed by a number. Victor Airways have a floor of 1,200 feet AGL and extend upward to an altitude of 18,000 feet MSL and are eight nautical miles wide. There are numerous Victor Airways in the vicinity due to the location of the Corvallis VOR/DME, Eugene VORTAC, and the Newport VORTAC. V-481, V-495, and V-536 pass over or terminate at the Corvallis VOR/DME. Several other Victor Airways, including V-23, V-488, V-287, and V274, are in the vicinity of the airport.

**Military Operations Areas (MOAs)**

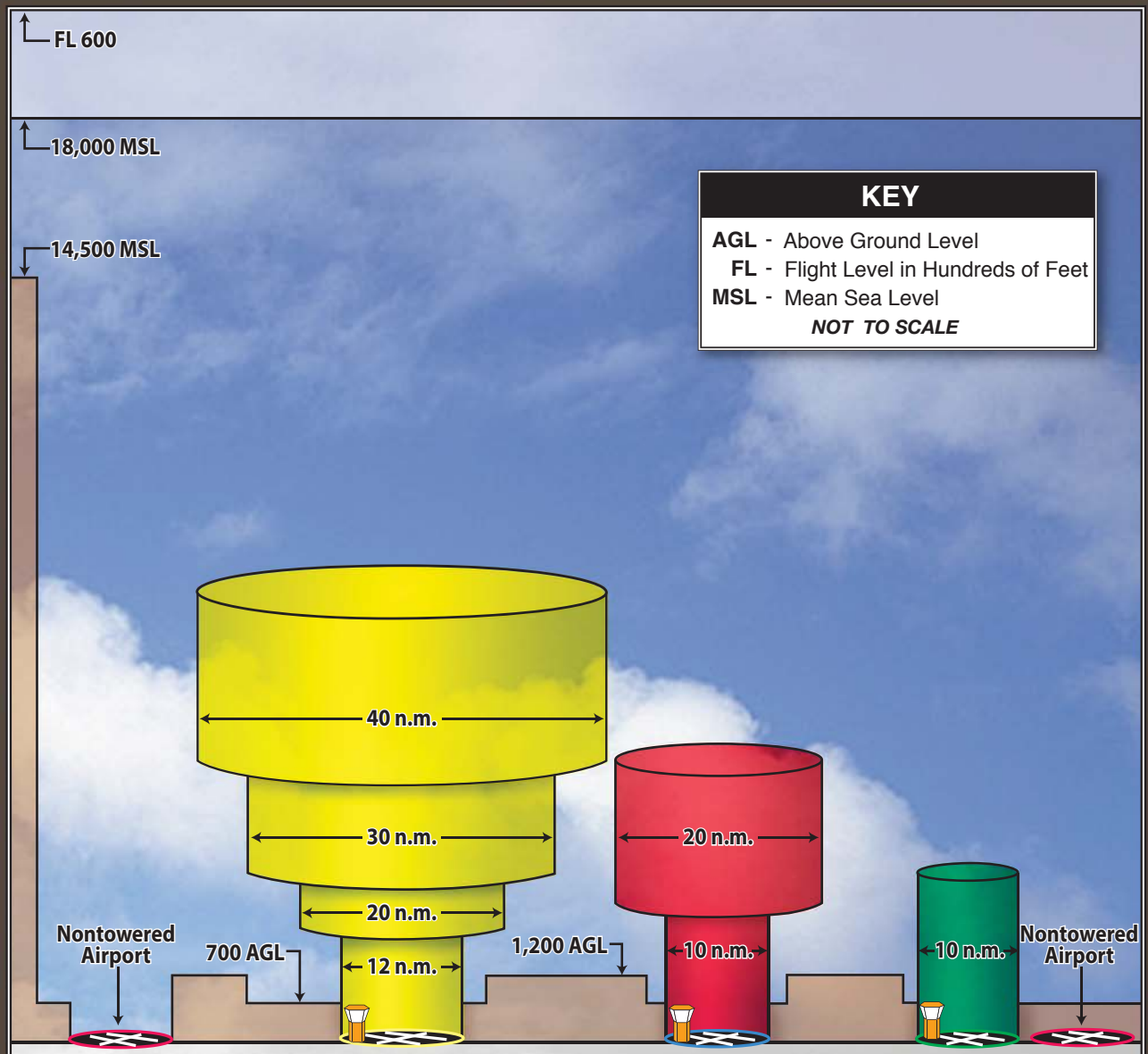
A Military Operations Area (MOA) is airspace designated for military training use. This is not restricted airspace as civil pilots can use the airspace. However, they should be on alert for the possibility of military traffic. A pilot may need to be aware that military aircraft can be found in high concentrations, conducting aerobatic maneuvers, and possibly operating at high speeds at lower elevations. The activity status of an MOA is advertised by a *Notice to Airmen* (NOTAM) and noted on Sectional Charts. The closest MOA to Corvallis Municipal Airport is the Dolphin North MOA located approximately 20 statute miles to the southwest.

**INSTRUMENT APPROACH PROCEDURES**

Instrument approach procedures are a series of predetermined maneuvers established by the FAA using electronic navigational aids to assist pilots in locating and landing at an airport during low visibility and cloud ceiling conditions. The capability of an instrument approach is defined by the visibility and cloud ceiling minimums associated with the approach. Visibility minimums define the horizontal distance the pilot must be able to see to complete the approach. Cloud ceilings define the lowest level a cloud layer (defined in feet above the ground) can be situated for a pilot to complete the approach. If the observed visibility or cloud ceiling is below the minimums prescribed for the approach, the pilot cannot complete the instrument approach. The available instrument approaches for Corvallis Municipal Airport are summarized in **Table 1G**.

The ILS to Runway 17 provides Category I (CAT I) approach minimums with 200-foot cloud ceiling heights and ½-mile visibility minimums. These are typically the lowest minimums available to a general aviation airport. When utilizing just the localizer antenna, the cloud ceiling is 616 feet and the visibility minimum remains at ½-mile for approach category A and B aircraft. For aircraft in approach category C, the visibility minimum increases to 1¼-mile, and for approach category D the visibility minimum is 1½-mile. Pilots can also utilize the ILS to locate the airport and then circle to the most appropriate runway depending on local wind conditions. This circling ILS approach has higher minimums.

Runway 17 has GPS approaches including an LPV (localizer performance with vertical guidance) approach. LPV instrument approaches are the most advanced GPS-type approaches in that they provide both horizontal and vertical positioning information. The LPV approach to Runway 17 provides for 334-foot cloud ceiling heights and 1-mile visibility minimum.




| CLASSIFICATION | DEFINITION |
|---|---|
| CLASS A | Generally airspace above 18,000 feet MSL up to and including FL 600. |
| CLASS B | Generally multi-layered airspace from the surface up to 10,000 feet MSL surrounding the nation's busiest airports. |
| CLASS C | Generally airspace from the surface to 4,000 feet AGL surrounding towered airports with service by radar approach control. |
| CLASS D | Generally airspace from the surface to 2,500 feet AGL surrounding towered airports. |
| CLASS E | Generally controlled airspace that is not Class A, Class B, Class C, or Class D. |
| CLASS G | Generally uncontrolled airspace that is not Class A, Class B, Class C, Class D, or Class E. |

Source: "Airspace Reclassification and Charting Changes for VFR Products," National Oceanic and Atmospheric Administration, National Ocean Service. Chart adapted by Coffman Associates from AOPA Pilot, January 1993.

CORVALLIS MUNICIPAL AIRPORT

Exhibit 1H
AIRSPACE CLASSIFICATION

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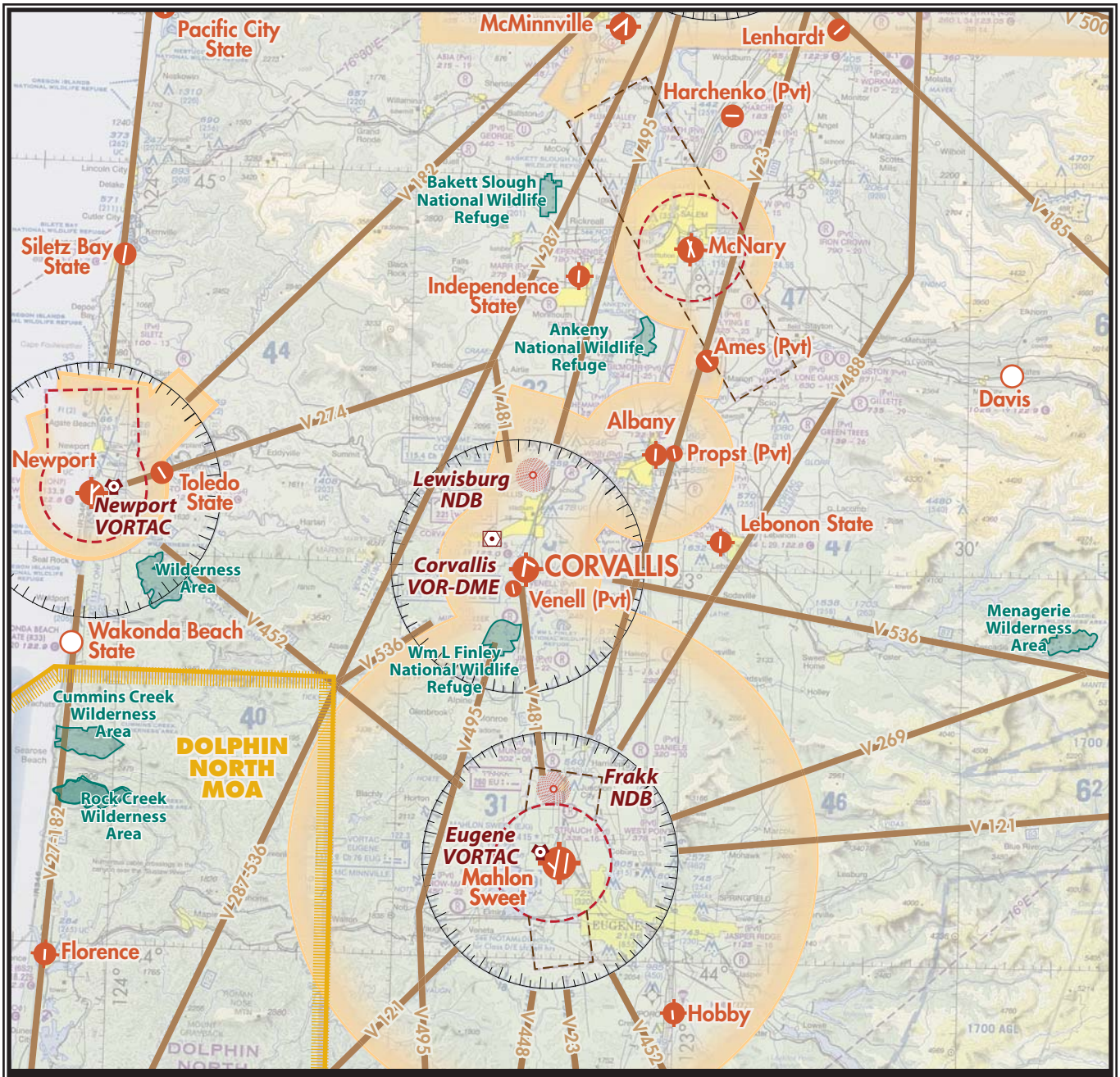


## LEGEND

- Airport with other than hard-surfaced runways
- Airport with hard-surfaced runways
- Non-Directional Radiobeacon (NDB)
- VORTAC
- VOR-DME
- Compass Rose
- Victor Airways
- Class D Airspace
- Class E Airspace
- Class E Airspace with floor 700 ft. above surface
- Military Operations Area
- Wilderness Area

NORTH

NOT TO SCALE

Source: U.S. Department of Transportation, Federal Aviation Administration, National Aeronautical Navigation Services - Effective January 13, 2011- January 12, 2012

CORVALLIS MUNICIPAL AIRPORT

Exhibit 1J
AIRSPACE MAP

Stand-alone CAT I LPV approaches (an LPV approach without the presence of an existing ILS) is a goal for the FAA.

The LPV instrument approach to Runway 35 provides 200-foot cloud ceiling minimums and ¾-mile visibility. These are the lowest available minimums for an LPV approach when there is no approach lighting system. Approach lighting systems, such as the MALSR in the Runway 17 end, provide for a ¼-mile visibility credit.

**TABLE 1G**
**Instrument Approach Data**
**Corvallis Municipal Airport**

| | WEATHER MINIMUMS BY AIRCRAFT TYPE | | | |
|---|---|---|---|---|
| | **Category A** | **Category B** | **Category C** | **Category D** |
| **ILS Rwy 17** | | | | |
| ILS Straight-In 17 | 200'/½-mile | | | |
| LOC Straight-In 17 | 616'/½-mile | | 616'/1¼-mile | 616'/1½-mile |
| Circling | 614'/1-mile | | 614'/1¾-mile | 634'/2-mile |
| **RNAV (GPS) Rwy 17** | | | | |
| LPV | 334'/1-mile | | | |
| LNAV/VNAV | 422'/1-mile | | | |
| LNAV MDA | 412'/1-mile | | | |
| Circling | 470'/1-mile | | 470'/1½-mile | 650'/2-mile |
| **RNAV (GPS) Rwy 35** | | | | |
| LPV | 200'/¾-mile | | | |
| LNAV/VNAV | 415'/1½-mile | | | |
| LNAV MDA | 390'/1-mile | | | 390'/1¼-mile |
| Circling | 470'/1-mile | | 470'/1½-mile | 650'/2-mile |
| **VOR/DME Rwy 17** | | | | |
| Straight-In 17 | 416'/½-mile | | 416'/¾-mile | 416'/1-mile |
| Circling | 474'/1-mile | | 474'/1½-mile | 634'/2-mile |
| **VOR/DME Rwy 35** | | | | |
| Straight-In 35 | 394'/1-mile | | | 394'/1¼-mile |
| Circling | 474'/1-mile | | 474'/1½-mile | 634'/2-mile |
| **NDB Rwy 17** | | | | |
| Straight-In 17 | 716'/¾-mile | | 716'/1½-mile | 716'/2-mile |
| Circling | 714'/ 1-mile | | 714'/2-mile | 714'/2¼-mile |
| **VOR-A** | | | | |
| Circling | 1154'/1¼-mile | 1154'/1½-mile | 1154'/3-mile | |

Aircraft Categories are based on 1.3 times the stall speed in landing configuration as follows:
Category A: 0-90 knots (e.g., Cessna 172)
Category B: 91-120 knots (e.g., Beechcraft King Air)
Category C: 121-140 knots (e.g., Canadair Challenger)
Category D: 141-166 knots (e.g., Gulfstream IV)

Abbreviations:
ILS - Instrument Landing System
LPV - Localizer Performance with Vertical Guidance
GPS - Global Positioning System
LNAV/RNAV/VNAV - A technical variant of GPS
VOR/DME - Very High Frequency Omnidirectional Radio Range with Distance Measuring Equipment
NDB - Non-directional Beacon

Note: (xxx/ x-mile) = Visibility/Cloud ceiling height

*Source: U.S. Terminal Procedures, Northwest Region (October 20, 2011)*

Several other instrument approaches are available utilizing other ground based navigational aids. The on-airport VOR/DME is the basis for instrument approaches to both ends of Runway 17-35. The Lewisburg NDB is the basis for an approach to Runway 17. A circling approach utilizing the VOR/DME provides pilots with directional and distance information to the airport. Once the pilot visually identifies the airport, they can circle to the desired runway for landing.

## INSTRUMENT DEPARTURE PROCEDURES

Much like approach procedures, departure procedures are a series of predetermined aircraft movements that pilots must follow when departing the airport on an IFR flight plan. Departure procedures have been established for certain airports in order to simplify clearance delivery procedures. **Table 1H** presents the details of the two available departure procedures at Corvallis Municipal Airport.

**TABLE 1H**
**Departure Procedures and Takeoff Obstructions**
**Corvallis Municipal Airport**

| | |
|---|---|
| **CORVALLIS ONE DEPARTURE** | |
| ***Takeoff Minimums*** | |
| Rwy 9: | 200'/1-mile or standard with minimum climb of 245' per NM to 500' |
| Rwys 17-35: | Standard |
| Rwy 27: | Standard with minimum climb of 310' per NM to 2,300' |
| ***Takeoff Obstacle Notes*** | |
| Rwy 9: | Multiple trees and railroad beginning 549' from departure end of runway, 254' left of centerline, up to 153' AGL/383' MSL<br>Multiple trees and railroad beginning 670' from departure end of runway, 5' right of centerline, up to 135' AGL/380' MSL |
| Rwy 27: | Glideslope antenna is 409' from the departure end of the runway, 325' left of centerline, 28' AGL/273' MSL |
| Rwy 35: | Multiple trees beginning 470' from departure end of runway, 544' left of centerline, up to 36' AGL/276' MSL<br>Tree 2.3 NM from departure end of runway, 1976' left of centerline, 128' AGL/607' MSL |
| **SHEDD ONE DEPARTURE** | |
| ***Takeoff Minimums*** | |
| Rwy 9: | 200'/1-mile or standard with minimum climb of 245' per NM to 500', Atc climb of 332' per NM to 3000' |
| Rwys 17-35: | Standard with minimum ATC climb of 312' per NM to 3000' |
| Rwy 27: | Standard with minimum obstacle climb of 310' per NM to 2,300', ATC climb of 312' per NM to 3000' |
| ***Takeoff Obstacle Notes*** | |
| Rwy 9: | Multiple trees and railroad beginning 549' from departure end of runway, 254' left of centerline, up to 153' AGL/383' MSL<br>Multiple trees and railroad beginning 670' from departure end of runway, 5' right of centerline, up to 135' AGL/380' MSL |
| Rwy 27: | Glideslope antenna is 409' from the departure end of the runway, 325' left of centerline, 28' AGL/273' MSL |
| Rwy 35: | Multiple trees beginning 470' from departure end of runway, 544' left of centerline, up to 36' AGL/276' MSL<br>Tree 2.3 NM from departure end of runway, 1976' left of centerline, 128' AGL/607' MSL |

*Source: U.S. Terminal Procedures, Northwest Region (October 20, 2011)*

## RUNWAY USE AND TRAFFIC PATTERNS

Corvallis Municipal Airport is situated at 250 feet MSL. All runways have a standard left hand traffic pattern. Runway use is dictated by prevailing wind conditions. Ideally, it is desirable for aircraft to land directly into the wind. The prevailing wind during the summer months is from

the south to the north and in the winter it is from the north to the south.

As previously mentioned, Runway 17-35 is used most of the time accounting for approximately 90 percent of operations. It is estimated that 60 percent of total operations use Runway 17, 30 percent use 35, nine percent use Runway 27, and only one percent use Runway 9.

## *LANDSIDE FACILITIES*

Landside elements are the ground-based facilities that support the aircraft and pilot/passenger handling functions. These facilities typically include the FBO(s), aircraft storage hangars, aircraft maintenance hangars, aircraft parking aprons, and support facilities such as fuel storage, automobile parking, roadway access, and aircraft rescue and firefighting. Landside facilities are identified on **Exhibit 1K**.

### AIRPORT AVIATION BUSINESSES

Corvallis Municipal Airport supports both aviation and non-aviation related businesses. Aviation related businesses include a full service fixed base operator (FBO), an air ambulance operator, a flight training business and several private hangar rental companies. The following describes the aviation related businesses:

**Corvallis Aero Service** is the airport's only FBO. As a full service FBO, Corvallis Aero offers fuel, ground support services, charters, aircraft rental, flight instruction, flight supplies, courtesy cars, aircraft maintenance, and hangar and tie-down rental. Corvallis Aero Services leases the main conventional hangar at the airport.

**REACH Air Medical Services** is an air ambulance service based at the Corvallis Municipal Airport providing service to the mid-Willamette Valley. They operate on a near daily basis responding to emergencies that require helicopter transport. They also provide patient transport in emergencies.

**Frontier Flight Service** is a flight training school specializing in training foreign students for careers in aviation.

**Helicopter Transport Services, Inc. (HTSI)** is a heavy air crane operator and provider of helicopter based firefighting services and aerial construction services. HTSI is currently in the process of closing their operations at Corvallis and relocating to another airport which is scheduled to be complete by year end 2012.

**Corlan Farms Hangars** is a provider of T-hangar rentals.

**Susan Looney Hangars** is a provider of T-hangar rentals.

**CVO Corporette** is a provider of hangar rentals.

### AIRPORT INDUSTRIAL PARK

Corvallis Municipal Airport supports a thriving 220-acre industrial park. There are approximately 15 separate businesses with physical facilities located in the Airport Industrial Park. The newest facility is the multi-million dollar headquarters building for Gerding Companies, completed in 2010.

The Airport Industrial Park has a rail spur that extends from the Venell Farms Railroad. The Venell Farms Railroad is the railroad that runs north and south immediately east of the airport. The line had been abandoned for several years prior to being restored by the owner of Venell Farms. The line now operates primarily

to bring agricultural goods north to market.

Through a combined effort among Benton County, the City of Corvallis and the Chamber Coalition, Benton County received an Enterprise Zone in 2008 and added to it in 2010. The initial zone (approximately 1,000 acres) includes the industrial area in South Corvallis including the Airport Industrial Park.

There are many benefits to an Enterprise Zone. Businesses that seek to expand or relocate will see the tax abatement directly, while other local businesses will benefit from the expanded customer base created by new jobs in the area. The Enterprise Zone provides a 3 to 5 year partial tax abatement incentive for new job-creating businesses in the area. Those businesses may be eligible for additional 4 to 5 year exemptions under certain circumstances.

The Airport Industrial Park is located on airport property. As such, all revenues generated through ground lease or facility lease of airport owned buildings must be utilized for airport maintenance and improvement. This stipulation is based on the grant assurances that the City has agreed to with the FAA in exchange for various development grants over the years.

The Airport Industrial Park is available for a wide range of industrial uses. Conceptually, the 220-acre site has been divided into three areas (Areas 1, 2, and 3). Area 1 includes frontage property along Airport Avenue and is intended for the least intensive industrial uses, such as office space. Area 2 is intended for general industrial and manufacturing activity and Area 3 provides for intensive industrial uses and those that require rail access. **Exhibit 1L** shows detail on the Airport Industrial Park. It should be noted that the City is currently in the process of developing a new master plan for the Airport Industrial Park which is scheduled to be complete in 2012.

## AIRCRAFT HANGAR FACILITIES

It is important to identify the types, sizes, and availability of hangar space at the airport in order to ultimately determine the long term need for additional facilities. Hangars can be categorized as T-hangars, executive box hangars, or conventional hangars. T-hangar units are intended for storage of a single small aircraft. They are "T" shaped, thus their name, and are typically nested together to maximize space and to lower the cost of construction.

Executive box hangars can be rectangular or square hangar spaces typically providing between 2,500 and 6,000 square feet of storage space. These hangars are often stand-alone structures, but they can be connected as well. Box hangars provide greater flexibility than T-hangars because they do not have a support structure that limits aircraft positioning. Box hangars are typically equipped with utilities such as electricity, water, and possibly sewer service.

Conventional hangars are large, clear-span hangars that typically house airport businesses or serve bulk aircraft storage needs. Operators of larger corporate aircraft may utilize these hangars as well.

The large WWII era conventional hangar is owned by the City of Corvallis and is leased to the FBO, Corvallis Aero Service. The FBO utilizes the office space in the hangar for their business and provide services to their clientele. The hangar space is utilized for both aircraft maintenance and aircraft storage.

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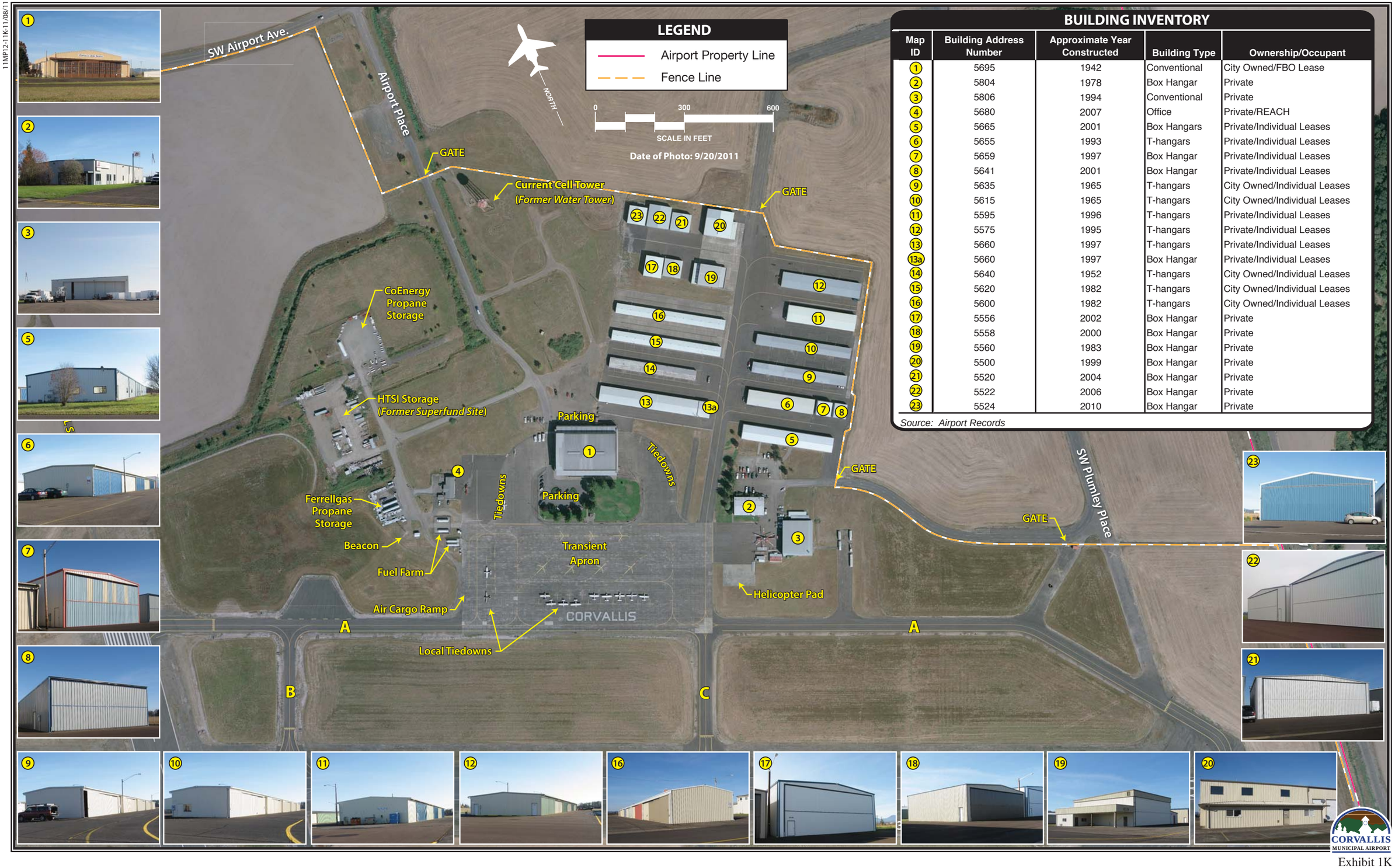



## LEGEND

- Airport Property Line
- Fence Line

## BUILDING INVENTORY

| Map ID | Building Address Number | Approximate Year Constructed | Building Type | Ownership/Occupant |
|---|---|---|---|---|
| 1 | 5695 | 1942 | Conventional | City Owned/FBO Lease |
| 2 | 5804 | 1978 | Box Hangar | Private |
| 3 | 5806 | 1994 | Conventional | Private |
| 4 | 5680 | 2007 | Office | Private/REACH |
| 5 | 5665 | 2001 | Box Hangars | Private/Individual Leases |
| 6 | 5655 | 1993 | T-hangars | Private/Individual Leases |
| 7 | 5659 | 1997 | Box Hangar | Private/Individual Leases |
| 8 | 5641 | 2001 | Box Hangar | Private/Individual Leases |
| 9 | 5635 | 1965 | T-hangars | City Owned/Individual Leases |
| 10 | 5615 | 1965 | T-hangars | City Owned/Individual Leases |
| 11 | 5595 | 1996 | T-hangars | Private/Individual Leases |
| 12 | 5575 | 1995 | T-hangars | Private/Individual Leases |
| 13 | 5660 | 1997 | T-hangars | Private/Individual Leases |
| 13a | 5660 | 1997 | Box Hangar | Private/Individual Leases |
| 14 | 5640 | 1952 | T-hangars | City Owned/Individual Leases |
| 15 | 5620 | 1982 | T-hangars | City Owned/Individual Leases |
| 16 | 5600 | 1982 | T-hangars | City Owned/Individual Leases |
| 17 | 5556 | 2002 | Box Hangar | Private |
| 18 | 5558 | 2000 | Box Hangar | Private |
| 19 | 5560 | 1983 | Box Hangar | Private |
| 20 | 5500 | 1999 | Box Hangar | Private |
| 21 | 5520 | 2004 | Box Hangar | Private |
| 22 | 5522 | 2006 | Box Hangar | Private |
| 23 | 5524 | 2010 | Box Hangar | Private |

*Source: Airport Records*















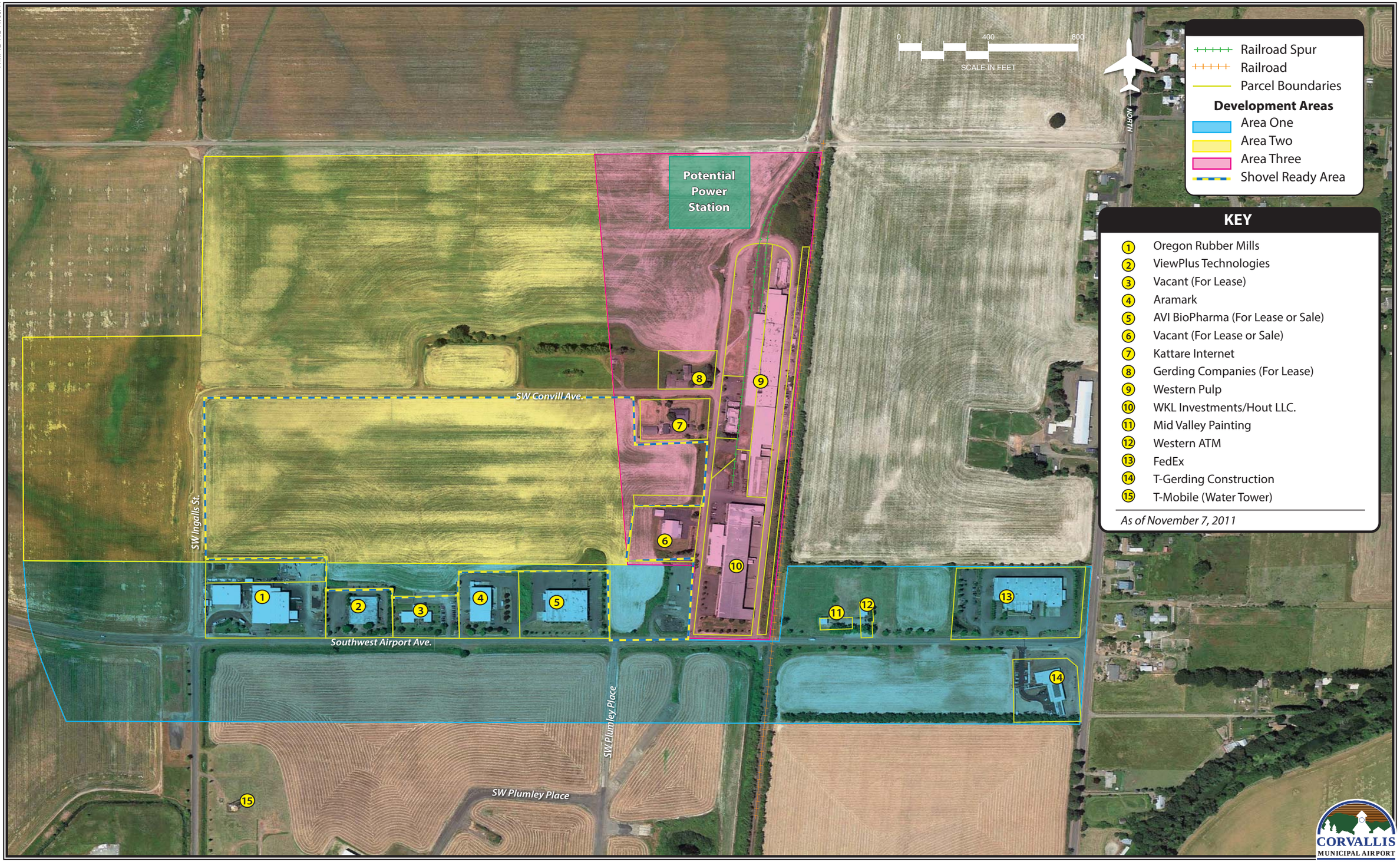






Exhibit 1K
LANDSIDE FACILITIES

11MP12-11L-11/08/11




## KEY

1. Oregon Rubber Mills
2. ViewPlus Technologies
3. Vacant (For Lease)
4. Aramark
5. AVI BioPharma (For Lease or Sale)
6. Vacant (For Lease or Sale)
7. Kattare Internet
8. Gerding Companies (For Lease)
9. Western Pulp
10. WKL Investments/Hout LLC.
11. Mid Valley Painting
12. Western ATM
13. FedEx
14. T-Gerding Construction
15. T-Mobile (Water Tower)

*As of November 7, 2011*

CORVALLIS MUNICIPAL AIRPORT

Exhibit 1L
AIRPORT INDUSTRIAL PARK

The easternmost hangar currently utilized by HTSI is a privately owned conventional hangar for both helicopter storage and maintenance. This hangar is approximately 11,000 square feet. HTSI also occupies the adjacent box hangar. This hangar once housed an airport FBO. Building number 5 (5665 Plumley) is a row of seven connected box hangars.

There are numerous nested T-hangar structures accessible by the taxilane to the east of the WWII conventional hangar. There are a total of 101 T-hangar positions, 54 of which are owned by the City of Corvallis and 47 are privately owned. The leasing of the T-hangar units in building number 13 (5660 Plumley) is managed by the airport FBO. The city-owned T-hangars identified as buildings 15 and 16 (5620 and 5600 Plumley, respectively) are wood-framed and are beginning to have structural problems such as sagging roof lines making some of the doors inoperable.

The northwest portion of the hangar area has been developed with seven corporate box hangars. All of these are privately owned hangars.

REACH Air Medical Services occupies an office building on the west side of the terminal area apron. They intend to construct a 2,500 square-foot box hangar to the immediate north of the office building for storage of their helicopter.

**Table 1J** presents a summary of the buildings and hangars at Corvallis Municipal Airport. As part of this master plan, a local structural engineer was consulted to provide an evaluation of the condition and useful life of the city-owned hangars which is included in **Appendix C**.

**TABLE 1J**
**Aviation Building Inventory**
**Corvallis Municipal Airport**

| Map ID | Building Type | Ownership/ Occupant | Total Aircraft Positions | Total Building Footprint (sf.) | Maintenance/ Office Space (sf.) | Aircraft Storage Space (sf.) |
|---|---|---|---|---|---|---|
| 1 | Conventional | City-Owned/FBO Lease | 10-12 | 31,500 | 9,500 | 22,000 |
| 2 | Box Hangar | Private | 2-3 | 5,500 | 1,000 | 4,500 |
| 3 | Conventional | Private | 4-5 | 11,000 | 1,100 | 9,900 |
| 4 | Office | Private | 0 | 2,100 | 2,100 | 0 |
| 5 | Box Hangars | Private/Individual Leases | 7 | 15,500 | 700 | 14,800 |
| 6 | T-hangars | Private/Individual Leases | 10 | 11,300 | 200 | 11,100 |
| 7 | Box Hangar | Private/Individual Leases | 1-2 | 2,500 | 200 | 2,300 |
| 8 | Box Hangar | Private/Individual Leases | 1-2 | 2,300 | 200 | 2,100 |
| 9 | T-hangars | City-Owned/Ind. Leases | 10 | 11,200 | 200 | 11,000 |
| 10 | T-hangars | City-Owned/Ind. Leases | 10 | 11,200 | 200 | 11,000 |
| 11 | T-hangars | Private/Individual Leases | 10 | 12,900 | 200 | 12,700 |
| 12 | T-hangars | Private/Individual Leases | 12 | 13,500 | 200 | 13,300 |
| 13 | T-hangars | Private/Individual Leases | 15 | 18,400 | 200 | 18,200 |
| 13A | Box Hangar | Private/Individual Leases | 1 | 2,500 | 200 | 2,300 |
| 14 | T-hangars | City-Owned/Ind. Leases | 10 | 10,500 | 200 | 10,300 |
| 15 | T-hangars | City-Owned/Ind. Leases | 12 | 13,000 | 200 | 12,800 |
| 16 | T-hangars | City-Owned/Ind. Leases | 12 | 13,000 | 200 | 12,800 |
| 17 | Box Hangar | Private | 1-2 | 4,200 | 200 | 4,000 |
| 18 | Box Hangar | Private | 1-2 | 3,600 | 100 | 3,500 |
| 19 | Box Hangar | Private | 1-2 | 7,300 | 2,400 | 4,900 |
| 20 | Box Hangar | Private | 2 | 9,000 | 900 | 8,100 |
| 21 | Box Hangar | Private | 1-2 | 3,900 | 100 | 3,800 |
| 22 | Box Hangar | Private | 1-2 | 5,600 | 200 | 5,400 |
| 23 | Box Hangar | Private | 1-2 | 3,900 | 100 | 3,800 |
| **TOTALS** | | | **135-149** | **225,400** | **20,800** | **204,600** |
| **AVIATION BUILDING SPACE BY TYPE** | | | | | | |
| **TOTAL T-HANGAR** | | | **101** | **115,000** | **1,800** | **113,200** |
| **TOTAL BOX HANGAR** | | | **20-29** | **65,800** | **6,300** | **59,500** |
| **TOTAL CONVENTIONAL HANGAR** | | | **14-19** | **42,500** | **10,600** | **31,900** |
| **TOTAL DEDICATED OFFICE** | | | **NA** | **2,100** | **2,100** | **NA** |

*Source: Airport Records/Interviews*

## AIRCRAFT PARKING APRON

The terminal area apron encompasses approximately 34,000 square yards. Approximately 10,200 square yards of the apron is designated for transient parking. This pavement is marked with seven transient positions, each of which is large enough to accommodate business jets. The southern portion of the apron, approximately 5,600 square yards, is marked with 19 local tie-down positions. The western portion of the apron, approximately 2,000 square yards, is marked with 8 local tie-down positions. The remaining 16,200 square yards is utilized for aircraft circulation, including Taxiway A that extends along the southern portion of the apron.

The apron fronting the REACH Air Medical Services office is approximately 3,000 square yards and was constructed with an FAA grant. REACH intends to construct an adjacent hangar facing this apron.

The large WWII conventional hangar is accessible on both ends. The pavement leading to the hangar is included in the lease hold. There are seven tie-down positions on the east pavement and four tie-downs on the west pavement. In total, there are 38 local aircraft tie-down positions.

There is an 850 square-yard apron located to the east of the main apron. This apron was funded with an FAA grant and is marked with two helicopter hard stands.

## AUTOMOBILE PARKING

There are various vehicle parking areas on the airport. The primary parking lot for transient airport users is in front of the WWII conventional hangar. There are 24 spaces including a handicap spot. This area encompasses approximately 15,000 square feet and is paved. Owners of based aircraft typically park in or adjacent to their hangar location. There are 26 designated vehicle spaces adjacent to the T-hangars which encompass approximately 4,500 square feet.

Several other vehicle parking lots are primarily available for people who work at the airport. The air ambulance company REACH has five paved spots encompassing approximately 1,500 square feet adjacent to their office. There are approximately 30 paved parking positions encompassing approximately 12,600 square feet adjacent to the former HTSI hangars. A gravel lot with 24 parking positions encompassing 10,000 square feet is adjacent to the row of connected box hangars nearest the former HTSI hangars. There is also a gravel lot on the north side of the WWII era conventional hangar. This lot is approximately 26,000 square feet and can accommodate approximately 50 vehicles. **Exhibit 1M** presents a graphic of vehicle parking at the airport.

## EMERGENCY RESPONSE

As a general aviation facility that is not certified for scheduled commercial service (FAR Part 139), the airport is not required to have on-airport fire fighting capability. The Corvallis Fire Department, Station No. 4 is the closest to the airport. It is located at 365 SW Tunison Avenue, approximately 3.6 miles to the north of the airport.

The Corvallis Fire Department has emergency response plans in place for airport and aircraft emergencies. For a first alarm, Station No. 4 would respond with an engine or a medical unit. A second en-

11MP12-11N-12/12/11


CORVALLIS MUNICIPAL AIRPORT

Exhibit 1M
AIRPORT VEHICLE PARKING

gine, a tender truck, and the fire chief would also respond from other station houses. The Station No. 4 engine has a water storage capacity of 500 gallons with A and B aqueous film forming foam systems and has seasonal off-road capability (when the ground is not too wet). The medical unit from Station No. 4 is an advanced life support transportation unit ambulance. The tender, responding from another station, has a 3,000 gallon water capacity with A and B foam systems. The second engine has a 1,000-gallon water capacity with A and B foam systems.

All fire department personnel are trained and certified as emergency medical technicians or paramedics. On a bi-annual basis, the department will conduct training at the airport, specifically for aircraft emergencies. An old Piper aircraft fuselage has been used as part of this training. Firefighter driver training is regularly conducted at the airport on the closed runway.

Formal Airport Rescue and Fire Fighting (ARFF) training leading to certification is not provided nor is it required for emergency responses at general aviation airports. The department does not have supplies of sodium based dry chemical, halon 1211, or clean agent, nor does it have potassium based dry chemical (Purple K). Certified training and the above mentioned suppression agents only begin to be required if the airport is Part 139 certified.

**AIRPORT MAINTENANCE**

The airport does not have a dedicated maintenance storage shed. They utilize the small storage units contained within the city-owned T-hangars for local storage.

**UTILITIES**

The airport is supplied with the full range of utilities. Potable Water, Wastewater and Storm Water utilities are all provided by the City of Corvallis and are available at the airport. The city has two water treatment plants, nine processed water reservoirs, one raw water reservoir, and approximately 210 miles of pipe. It should be noted that portions of the sewer line depicted are WWII era wood-stave lines that have been decommissioned and removed in some places. **Exhibit 1N** presents the utility infrastructure in the airport area.

Corvallis ranks near the top of EPA's Green Power Communities list. In 2005, Corvallis became the first city on the West Coast to become a Green Power Community, purchasing a little over 17 million kilowatt-hours (kWh) of green power. Today, Corvallis' green power use has reached more than 100 million kWh annually and makes up approximately 15 percent of the community's total electricity consumption.

Corvallis' community-wide participation is the result of strong collaborative efforts between the city government, residents, businesses, and educational institutions. In 2005, by way of a City Council Resolution, the Corvallis local government chose to lead by example by purchasing seven percent green power for all city-owned facilities and urged its residents and businesses to do the same. Oregon State University is the largest single purchaser of green power in Corvallis and this is in part due to the "green energy" fee that students approved in 2007. The University purchases more than 51 million kilowatt-hours of green power annually, accounting for more than half of its overall electricity use.

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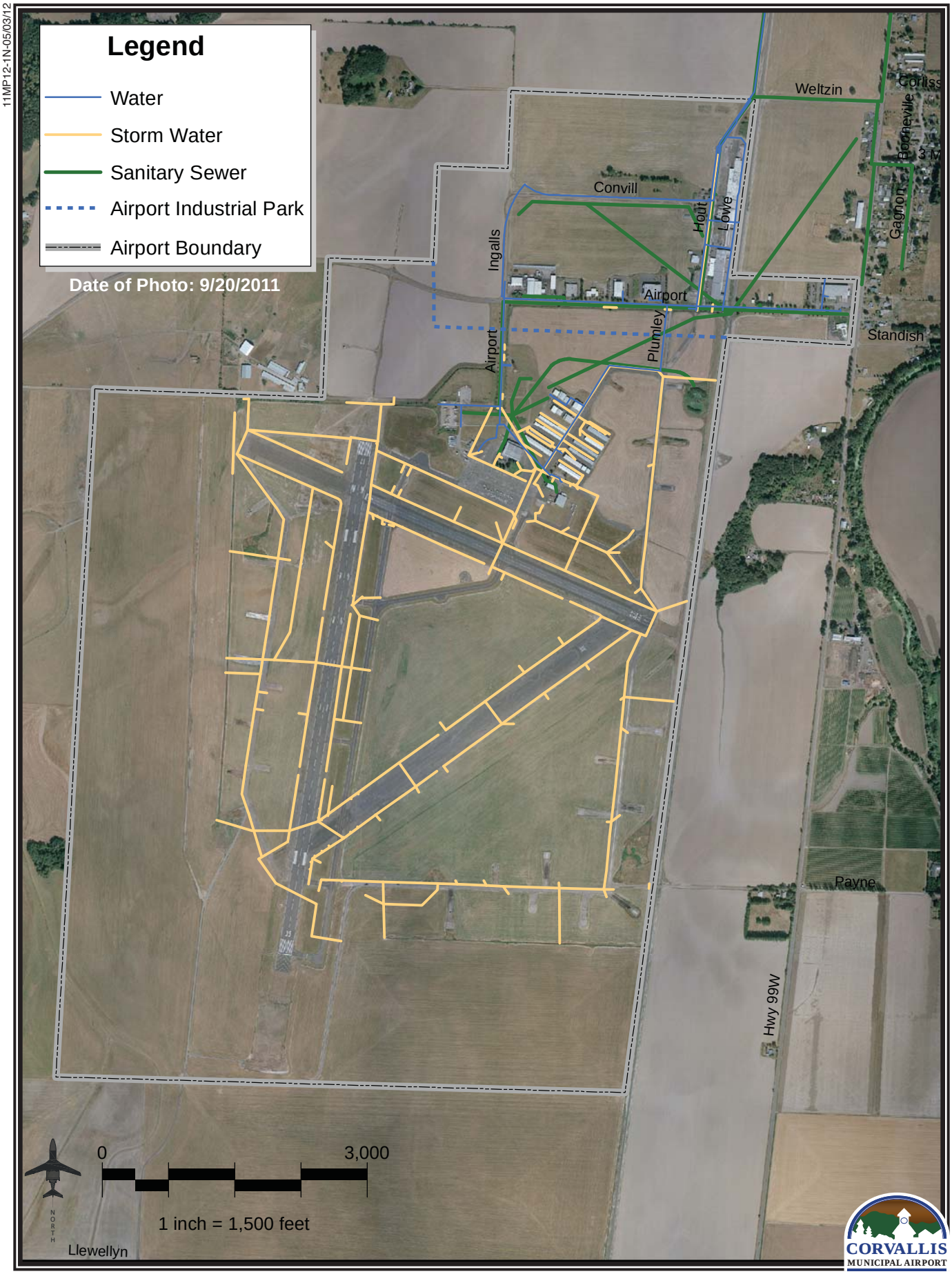



*Source: City of Corvallis GIS Department*

Exhibit 1N
AIRPORT UTILITIES

Pacific Power is the primary electricity provider in the region. Natural gas is available from Northwest Natural Gas Company. Home phone, television, data and communications lines are available from Comcast, Lingo, Clear Channel, HughesNet, and others. Wireless phone service is available from numerous wireless providers.

### FUEL FACILITIES

The fuel farm is located adjacent to the west end of the main apron. The airport FBO Corvallis Aero Service owns the aboveground storage tanks and pays a fuel flowage fee to the city for the right to dispense fuel on the airport. There are two 10,000-gallon 100LL tanks and two 10,000-gallon Jet A fuel tanks. A self-serve pump is available for 100LL fuel. Corvallis Aero Service also owns three fuel delivery trucks. One truck with a capacity of 1,200 gallons is dedicated for 100LL fuel. The other two trucks with capacities of 2,300 gallons each transport Jet A fuel.

### FENCING

Perimeter fencing provides an important security function and a wildlife prevention function. The airport has partial fencing consisting of six-foot high chain link topped with 3-strand barbed wire. The fencing stretches along the north and east sides of the airport. Approximately 16,000 linear feet of fencing would be needed on the south and west sides of the airport to complete the perimeter fence.

### ADDITIONAL AIRPORT DOCUMENTATION

The airport maintains several procedural documents which provide guidance for airport management and tenants on airport issues. The *Minimum Standards for Commercial Aeronautical Activities* were established in May 2002 and are meant to encourage and ensure the provision of adequate services and facilities, economic health, and orderly development of aviation and related aeronautical activities at the airport. The *Corvallis Airport Handbook – Rules, Regulations, Pilot Information and Building Standards* was adopted in January 1996.

## *HISTORICAL AIRPORT ACTIVITY*

At general aviation airports, the number of based aircraft and the total annual operations (takeoffs and landings) are the primary indicators of aeronautical activity. These indicators will be used in subsequent analyses in this master plan to project future aeronautical activity and determine future facility needs.

### ANNUAL OPERATIONS

Aircraft operations are classified as local or itinerant. Local operations consist mostly of aircraft training operations conducted within the airport traffic pattern and touch-and-go and stop-and-go operations. Itinerant operations are arriving or departing aircraft which have an origin or destination away from the airport.

Aircraft operations are further classified in three general categories: air taxi, general aviation, and military. Air taxi operations normally consist of the use of general aviation type aircraft for the "on-demand" commercial transport of persons and property in accordance with 14 CFR Part 135 and Subchapter K of 14 CFR Part 91. Generally, fractional aircraft operations and air ambulance operations will fall in the air taxi category. General aviation operations include a wide range of aircraft use ranging from personal to business and corporate uses. General aviation operations comprise the majority of operations at Corvallis Municipal Airport. Military use of the airport is limited.

Corvallis Municipal Airport does not have an airport traffic control tower (ATCT) and, therefore, exact operational figures are not available. Several sources do provide estimates of current operational levels. The FAA publishes the *Terminal Area Forecast* (TAF) which provides an estimate of annual operations. In 2010, the FAA estimated that Corvallis Municipal Airport had 119,070 annual operations with 61,346 being local in nature and 57,724 being itinerant. FAA Form 5010 provides an estimate of 52,300 annual operations. The *Oregon Airport System Plan* utilized the FAA TAF for historical operations data.

**BASED AIRCRAFT**

Identifying the current number of based aircraft is important to master plan analysis, yet it can be challenging because of the transient nature of aircraft storage. The City of Corvallis maintains a record of the aircraft utilizing space in the city-owned T-hangars. The city has also requested based aircraft data of the FBO and other private hangar owners. HTSI is the heavy helicopter business currently based at the airport. By the end of 2012, all of their operations and helicopters are scheduled to relocate to another airport. As a result, HTSI's currently based helicopters are not included in the baseline based aircraft count. There are currently 156 aircraft based at the airport. Of this total, 135 are single engine piston powered aircraft, 11 are multi-engine piston aircraft, three are turboprops, two are jets, and five are helicopters. The based jets are a Cessna Citation CJ1 525 and a CASA Jet.

The FAA TAF estimates there were 135 based aircraft at the airport in 2010. FAA Form 5010 provides an estimate of 146 based aircraft with 111 single engine piston, 11 multi-engine, two jets, and 22 helicopters. The FAA Form 5010 helicopter estimate includes the HTSI equipment.

For planning purposes, this master plan will utilize the airport count of 156 based aircraft which does not include the HTSI helicopters. It should be noted that there are several ultralight aircraft at the airport but these are not included in the based aircraft count per FAA direction.

## *AIRPORT SERVICE AREA*

The service area is loosely defined as a baseline geographical area from which future aviation demand (particularly based aircraft) is most likely to originate. The service area should relate to existing geographical areas, such as a county, or city boundary, in order to facilitate correlation with known socioeconomic data. With this relationship, forecasts of aviation demand can be made.

Many factors can contribute to the definition of an airport's service area. A primary factor is the proximity, capability, and

level of services offered by other area airports. Another factor is the actual location where based aircraft owners live or work in proximity to the airport.

## REGIONAL AIRPORTS

The proximity of other airports is largely the defining factor when describing an airport's service area. A review of public use airports in the region was made to identify and distinguish the types of air services provided in the region. Information pertaining to each airport was obtained from FAA Form 5010, *Airport Master Record*, as well as the web site www.airnav.com.

It is important to consider the capabilities and limitations of other airports when planning for future changes or improvements at Corvallis Municipal Airport. The following are those public use airports with asphalt or concrete runways that can serve general aviation aircraft. These airports are listed by their proximity to Corvallis Municipal Airport. **Table 1K** identifies the major characteristics of each airport.

**TABLE 1K**
**Public-Use Airports With Instrument Approaches Near Corvallis**

| Airport Name (Identifier) | Service City | Distance/ Direction | FAA Type | Longest Runway | Based Aircraft | Annual Ops | Services |
|---|---|---|---|---|---|---|---|
| Albany Municipal (S12) | Albany | 15mi. NE | GA | 3,004 | 57 | 23,400 | 100LL only, |
| Mahlon Sweet Field (EUG) | Eugene | 26mi. S | Commercial | 8,009 | 151 | 69,000 | Full Service FBO |
| McNary Field (SLE) | Salem | 32mi. NE | Commercial | 5,811 | 216 | 53,000 | Full Service FBO |
| Newport Municipal (ONP) | Newport | 38mi. W | GA | 5,398 | 30 | 24,000 | Limited Services |
| McMinnville Municipal (MMV) | McMinnville | 48mi. N | GA | 5,420 | 132 | 64,000 | Full Service FBO |

*Source: www.airnav.com as accessed on 11.9.11*

**Albany Municipal Airport (S12)** is located 15 miles to the northeast of Corvallis Municipal Airport. The airport is owned and operated by the City of Albany. The airport provides a single runway that is 3,004 feet in length. The only instrument approach is a circling approach utilizing the Corvallis VOR with visibility minimums of 1-mile. It is estimated that there are 57 based aircraft including two small jets. General aviation services are limited and 100LL is the only type of fuel available.

**Mahlon Sweet Field (EUG)** is 26 miles to the south, serving the City of Eugene. The airport is a commercial service facility experiencing approximately 369,000 enplanements in 2010. There are two paved parallel runways with Runway 16R-34L measuring 8,009 feet long and Runway 16L-34R measuring 6,000 feet in length. The runways have a full array of instrument approaches including CAT I ILS approaches to Runways 16L and 16R, and CAT II and CAT III approaches to Runway 16R. Numerous GPS approaches are available to all runway ends.

Atlantic Aviation is a full service FBO at the airport. There are approximately 151 based aircraft, 11 of which are business jets. The airport experiences approximately 69,000 annual operations.

**McNary Field (SLE)** is located 32 miles to the northeast of Corvallis Municipal Airport in Salem, Oregon. The airport is currently listed as a commercial service facility having approximately 15,200 enplanements in 2009. By 2010, the airport had lost service and currently has no scheduled service.

Runway 13-31 is 5,811 feet long and crosswind Runway 16-34 is 5,145 feet long. Runway 31 provides an ILS instrument approach, a GPS approach, and a localizer approach. Runway 13 has a localizer back-course instrument approach. The airport has approximately 216 based aircraft, 11 of which are business jets. There are two full service FBOs at the field. The Oregon Army National Guard – Army Aviation Support Facility is located at the airport.

**Newport Municipal Airport (ONP)** is a general aviation facility located 38 miles to the west of Corvallis Municipal Airport. Runway 16-34 is 5,398 feet long and Runway 2-20 is 3,001 feet long. Runway 16 supports an ILS instrument approach. GPS and VOR approaches are available to all runway ends. There are approximately 30 based aircraft and the City of Newport serves as the airport FBO.

**Other Influencing Airports**

Venell Farms Airport (OR52) is a private airport located to the immediate southwest of the Corvallis Municipal Airport. The runway is less than a mile from the Runway 35 threshold at Corvallis. The runway is designated 15-33 and is 2,350 feet long and 50 feet wide. This airport is utilized by Venell Farms primarily for their aerial spraying needs. It should be noted that Venell Farms bases a twin-engine aircraft at Corvallis Municipal Airport.

There are several unpaved private landing strips in the vicinity of Corvallis Municipal Airport. These include Muddy Creek, Schrock, Coca-Cola, Dunning Vineyards, and Holiday Airports.

**BASED AIRCRAFT LOCATION**

Most pilots who choose to base their aircraft at an airport do so because of the convenience of the airport to their residence or place of business. With that said, some aircraft owners will have other priorities such as runway length if they have a business jet or hangar space availability.

The based aircraft list provided by the city includes the location of registration or primary mailing address for each aircraft. Of the 156 based aircraft, 138 are registered in the State of Oregon and 18 are registered out of state. The primary concentrations of registered based aircraft around the airport include 99 registered in Corvallis, 11 in Albany, and 8 in Philomath. There are a total of 109 based aircraft registered in Benton County and 13 registered in Linn County.

**SERVICE AREA SUMMARY**

Benton County, Oregon represents the primary airport service area as nearly 70 percent of the aircraft based at the airport are registered to an owner or business in the county. Approximately 8 percent of the based aircraft at the airport are registered in Linn County. Portions of western Linn County, therefore, are also included in the primary service area for the airport. **Exhibit 1P** presents the primary airport service area and the registration location of the based aircraft in the area.

## *HISTORIC SOCIOECONOMIC DATA*

Socioeconomic information related to the approximate airport service area is an

important consideration in the master planning process. The historic trend in elements such as population, employment, and income provides insight into the long term socioeconomic condition of the region. **Table 1L** presents the historic population data from the U.S. Census Bureau.

**TABLE 1L**
**Historical Population**
**Corvallis Municipal Airport Area**

| Year | Corvallis | Benton County | Linn County | CSA | State of Oregon |
|---|---|---|---|---|---|
| 2000 | 49,322 | 78,153 | 103,069 | 181,222 | 3,421,399 |
| 2010 | 54,462 | 85,579 | 116,672 | 202,251 | 3,831,074 |
| AAGR | 1.00% | 0.91% | 1.25% | 1.10% | 1.14% |

CSA: Combined Statistical Area includes Benton and Linn Counties
AAGR: Average Annual Growth Rate
*Source: U.S. Census Bureau*

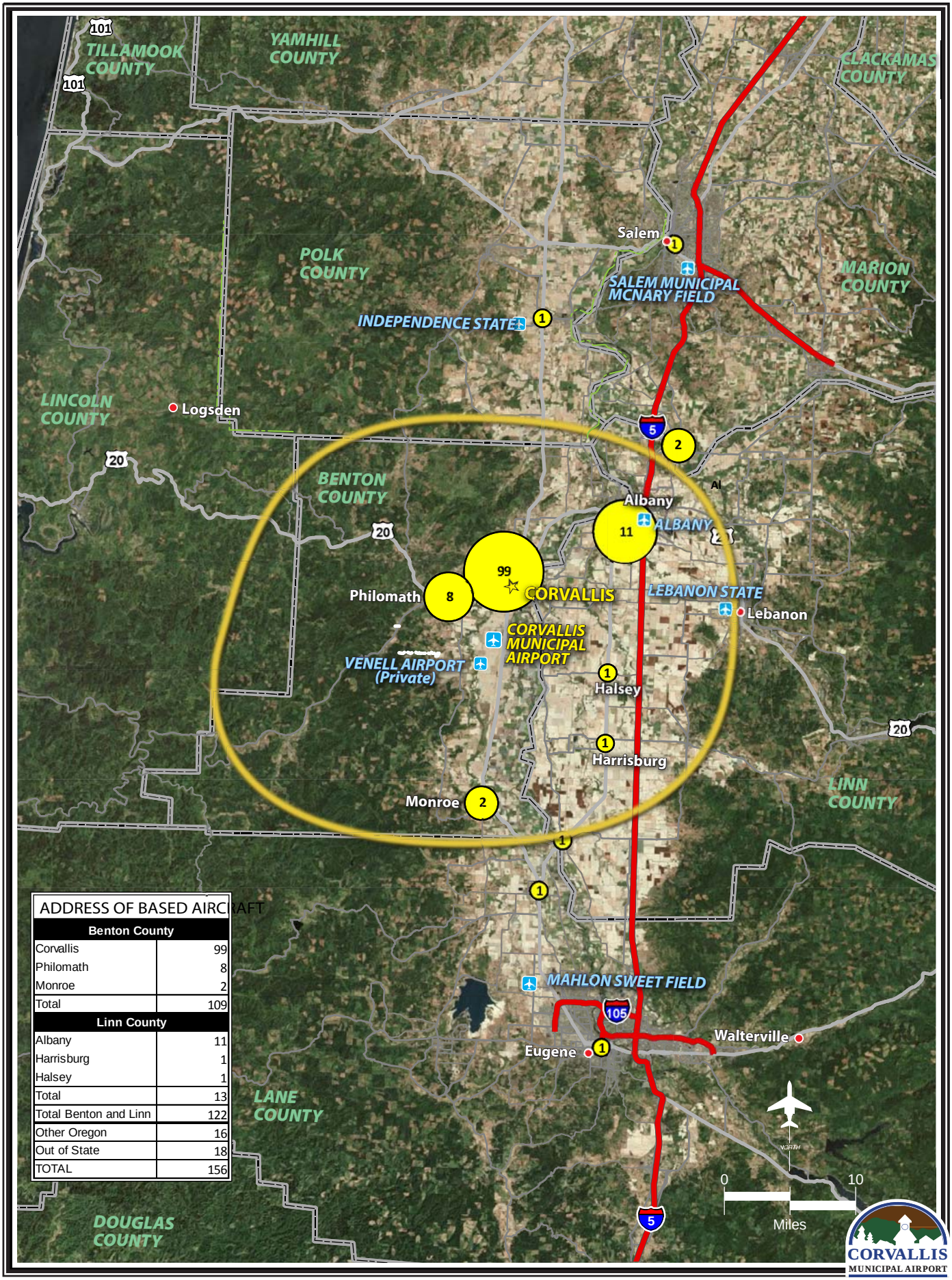
The population of the City of Corvallis in 2000 was 49,332. In 2010, the population was approximately 54,462 an annual average growth rate of 1.00 percent. Benton County and western portions of Linn County are in the airport's primary service area. In 2000, the Benton County population was 78,153 and by 2010, it was 85,579. A growth rate of 0.91 percent annually, according to census statistics. Linn County grew even faster at 1.25 percent annually, growing from 103,069 in 2000 to 116,672 in 2010.

Several sources were examined for employment and income data in the region. Demographic data available from Woods & Poole Economics, an independent firm specializing in long term demographic projections for U.S. states, counties, and statistical areas, provides comprehensive historical and forecast data. They publish data annually and update the previous several years as necessary. Use of Woods & Poole data for airport planning is specifically approved by the FAA. **Table 1M** presents the historical employment and income for Benton and Linn Counties, the State of Oregon, and the combined statistical area (CSA) which includes Corvallis, Lebanon, and Albany.

**TABLE 1M**
**Historical Employment and Income Data**

| Year | Benton County | AAGR | Linn County | AAGR | CSA | AAGR | Oregon | AAGR |
|---|---|---|---|---|---|---|---|---|
| **Employment** | | | | | | | | |
| 2000 | 51,494 | NA | 52,698 | NA | 104,192 | NA | 2,094,850 | NA |
| 2005 | 54,474 | 1.13% | 53,451 | 0.28% | 107,925 | 0.71% | 2,199,820 | 0.98% |
| 2010 | 54,755 | 0.05% | 53,058 | -0.07% | 107,813 | -0.01% | 2,235,473 | 0.16% |
| **Income - Per Capita Personal Income ($2005)** | | | | | | | | |
| 2000 | $32,829 | NA | $25,651 | NA | $28,748 | NA | $31,989 | NA |
| 2005 | $34,082 | 0.75% | $26,694 | 0.80% | $29,821 | 0.74% | $32,526 | 0.33% |
| 2010 | $32,828 | -0.75% | $26,230 | -0.35% | $28,963 | -0.58% | $32,050 | -0.29% |

CSA: Combined Statistical Area includes Corvallis, Lebanon, Albany (from CEDDS)
AAGR: Average annual growth rate in 5-year increments
*Source: Woods & Poole Economics - Complete Economic Demographic Data Source (CEDDS-2011)*




ADDRESS OF BASED AIRCRAFT

| Benton County | |
|---|---|
| Corvallis | 99 |
| Philomath | 8 |
| Monroe | 2 |
| Total | 109 |
| **Linn County** | |
| Albany | 11 |
| Harrisburg | 1 |
| Halsey | 1 |
| Total | 13 |
| Total Benton and Linn | 122 |
| Other Oregon | 16 |
| Out of State | 18 |
| TOTAL | 156 |

Source: Airport records.

Exhibit 1P
AIRPORT SERVICE AREA

Of particular note is the dramatic decline in both employment and income between 2005 and 2010. As of this writing (late 2011), the U.S. economy is struggling to recover from the recession that ran from late 2007 to late 2009. Employment was flat in the CSA from 2005 to 2010 and income declined. Both of these categories were below what the State of Oregon experienced.

## *ENVIRONMENTAL INVENTORY*

A review of the potential environmental impacts associated with proposed airport projects is an essential consideration in the airport master plan process. The intent of this inventory is to identify potential environmental sensitivities or resources that might affect future improvements at the airport. The information contained in this section was obtained from internet resources, agency maps, and existing literature.

Any improvements planned for the airport and depicted on the Airport Layout Plan (ALP) will require compliance with the *National Environmental Policy Act (NEPA) of 1969*, as amended. FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, describes 19 potential environmental impact categories. The following environmental inventory discusses the impact categories that are likely to apply to the airport area and any preliminary issues for the airport. With this information, airport planning can proceed with attention paid to any environmental concerns that could impact the future development of the airport. Once the final master plan concept has been determined, the direct impact of the airport plan on each of the categories will be examined in greater detail in **Appendix E**.

The following resource categories, primarily related to construction projects, were not inventoried:

- Construction Impacts
- Secondary (Induced) Impacts
- Cumulative Impacts

The following sections provide a discussion of the remaining resource categories.

### AIR QUALITY

The U.S. Environmental Protection Agency (EPA) has adopted air quality standards that specify the maximum permissible short-term and long-term concentrations of various air contaminants. The National Ambient Air Quality Standards (NAAQS) consist of primary and secondary standards for six criteria pollutants which include: Ozone ($O_3$), Carbon Monoxide (CO), Sulfur Dioxide ($SO_2$), Nitrogen Oxide (NO), Particulate matter ($PM_{10}$ and $PM_{2.5}$), and Lead (Pb). Various levels of review apply within both NEPA and through permitting requirements. Potentially significant air quality impacts, associated with an FAA project or action, would be demonstrated by the project or action exceeding one or more of the NAAQS for any of the time periods analyzed.

According to the United States (U.S.) Environmental Protection Agency's (EPA) *NonAttainment Status for Each County by Year* (i.e., the Green Book), Benton County is in attainment for all six criteria air pollutants monitored by the EPA.[1] In addition to conforming to the NAAQS promulgated by the EPA, the airport will be required to follow all local, state, and federal air quality regulations, including those identified by the FAA in Advisory Circular

(AC) 150/5370-10A, *Standards for Specifying Construction of Airports.*

## COASTAL RESOURCES

The Corvallis Municipal Airport is approximately 40 miles east of the Pacific Ocean. In Oregon, the Coastal Zone is considered to extend inland to the crest of the Oregon Coast Range.[2] Marys Peak, which is the highest point (4,101 feet MSL) of the Oregon Coast Range nearest Corvallis, is approximately thirteen (13) miles to the west of the airport. The airport is not within the Coastal Zone.

## COMPATIBLE LAND USE

The compatibility of existing and planned land uses in the vicinity of an airport is usually associated with the extent of the airport's noise impacts. Noise exposure contours will be prepared for Corvallis Municipal Airport based on the aviation forecasts and the recommended development concept of this master plan.

Land immediately surrounding the airport is primarily used for agricultural operations. To the north of the airport terminal area is the Airport Industrial Park, and farther north and east are several residential areas.

Compatible land use also addresses nearby features that could pose a threat to safe operation of aircraft by attracting wildlife (e.g., landfills and ponds). Valley Landfills, Inc. operates the Coffin Butte Landfill located approximately 14 miles to the north of the airport. Approximately one mile to the east of the airport on the east side of Oregon Route 99W, there is a cement production facility with numerous ponds. The Willamette River is approximately three miles to the east of the airport and the Marys River is approximately one mile to the north of the airport. Approximately one mile to the west is Muddy Creek, a tributary to Marys River.

## DEPARTMENT OF TRANSPORTATION (DOT) ACT: SECTION 4(f)

Section 4(f) of the DOT Act, which was recodified and renumbered as Section 303(c) of 49 United States Code (USC), provides that the Secretary of Transportation will not approve any program or project that requires the use of any publicly owned land from a historic site, public park, recreation area, or waterfowl and wildlife refuge of national, state, regional, or local importance unless there is no feasible and prudent alternative to the use of such land, and the project includes all possible planning to minimize harm resulting from the use.

There are no known significant historic sites, public parks, recreation areas, or wildlife or wildfowl refuges located on or adjacent to the airport. The closest park is located approximately 1.5 miles north of the airport at the Herbert Farm and Natural Area. This 221-acre property is owned by the City of Corvallis as part of a program to acquire open space parcels around the perimeter of the city. The property includes farmland with native oak groves, diverse plants, and protected wildlife habitat. It is located at the confluence of Muddy Creek and Marys River and provides views of Marys Peak and Dimple Hill. Herbert Farm and Natural Area contains small populations of federal, state, and locally listed and other rare plant and animal species, including eight species of rare plants (two that are federally listed as threatened) and eight species of rare wildlife.[3] (See also discussion under Fish, Wildlife, and Plants.)

The William L. Finley National Wildlife Refuge is located approximately four (4) miles south of the airport. This refuge was created to provide wintering habitat for the dusky Canadian goose and includes the historic Fiechter House.[4]

There are no federally listed or state-listed historic properties within one mile of the airport; however, Benton County also maintains a register of historic places.[5] Based on this database, the closest listed properties on the county's register are the McBee farmstead on Cutler Avenue and the Samuel Whiteside farm, located on Bellfountain Road. The McBee house is approximately 0.75 mile to the west of the airport's western boundary; the Whiteside farm is located over one mile to the west of the airport.

The inventory of historical and cultural resources in Benton County is largely based on surveys and historic inventories completed in the 1980s. The *Benton County Historic Context Statement* is the County's historic preservation plan, which is the basis for code guidelines and regulations for the inventory, listing, demolition, alteration, and removal of historic resources. Owner consent is required for historic resources to be listed on the Benton County register (Benton County 2007, Section 5.5).

**FARMLANDS**

Under the *Farmland Protection Policy Act* (FPPA), federal agencies are directed to identify and take into account the adverse effects of federal programs on the preservation of farmland, to consider appropriate alternative actions which could lessen adverse effects, and to assure that such federal programs are, to the extent practicable, compatible with state or local government programs and policies to protect farmland. The FPPA guidelines developed by the U.S. Department of Agriculture (USDA) apply to farmland classified as prime or unique, or of state or local importance as determined by the appropriate government agency, with concurrence by the Secretary of Agriculture.

Corvallis Municipal Airport consists primarily of the following soil types: Dayton silt loam, 0 to 2 percent slopes; Woodburn silt loam, 0 to 3 percent slopes; and Amity silt loam, 0 to 3 percent slopes. Verboort silty clay loam, 0 to 3 percent slopes, is also present in drainages in the northern and southeastern portions of the airport. These soils are rated as prime farmland (Woodburn loam), prime farmland if drained (Amity loam), and farmland of statewide importance (Dayton and Verboort loams) according to the U.S. Department of Agriculture, Natural Resources Conservation District's web soil survey.[6] Prior to the conversion of prime farmland, a Farmland Conversion Impact Rating Form, AD-1066, would be required in accordance with the FPPA.

Most of the land surrounding the airport is currently used for agricultural purposes with scattered rural residences interspersed along Highway 99W. **Exhibit 1Q** presents the farmland classification as well as floodplains.

**FISH, WILDLIFE, AND PLANTS**

The biological setting of the airport is typical for the Pacific Northwest. Where native vegetation remains, there are grasslands (prairies), oak and maple woodlands, ash, and stands of Douglas fir. Mammal species in the area include elk and deer as well as other species typical to these biomes. The airport is located within the Willamette Valley ecoregion of Benton County.[7]

There are often large birds in the vicinity of the airport, particularly hawks, geese, and eagles. The airport currently uses an air-cannon, which produces a large boom, to scare geese off the runways. Blue heron have also been spotted nesting in between the taxiways.[8]

There are several federal laws that provide protection to biological resources that may occur on or near the airport. Section 7 of the *Endangered Species Act of 1973* (ESA), as amended, sets forth requirements for consultation with the U.S. Fish and Wildlife Service (USFWS) if a proposed action "may affect" a federally endangered or threatened species. Effects on candidate species for protection under the ESA also require input from the USFWS.

Other federal laws include the *Migratory Bird Treaty Act,* which prohibits activities that would harm migratory birds, their eggs or nests, and the *Fish and Wildlife Coordination Act,* which requires consultation with state wildlife agencies concerning wildlife resources if impacts to water resources might occur. Executive Order 13312, *Invasive Species,* aims to prevent the introduction of invasive species as a result of a proposed action.

There are ten federally protected species which may occur in Benton County.[9] There are two threatened species of birds (i.e., marbled murrelet and Northern spotted owl), one threatened species of fish (i.e., Oregon chub), and one species of endangered butterfly (i.e., Fender's blue butterfly). All four of these species also have designated critical habitat. There are also four threatened plant species and two endangered plant species that may be located within the county. Two of these species, Willamette daisy and Kincaid's lupine, have designated critical habitat.

There are also numerous "species of concern" identified by the USFWS for Benton County; these are not species that are protected under federal law, but are species for which further information is still needed. The Streaked Horned Lark is a candidate species for listing. The largest group of nesting pairs in the world, 92 at last count, is located at the airport. An ongoing study of this species is being conducted by Oregon State University. The following species have been "de-listed" by the USFWS (i.e., have been removed from the federal list of endangered and threatened wildlife and plants): Aleutian Canada goose, American peregrine falcon, and bald eagle.

In 1987, the Oregon Legislature passed a state *Endangered Species Act* which gave the Oregon Department of Agriculture (ODA) responsibility and jurisdiction over threatened and endangered plants (Oregon Revised Statute [ORS] 564.105 and Oregon Administrative Rules [OAR] 603-073), and reaffirmed the Oregon Department of Fish and Wildlife's (ODFW) responsibility for threatened and endangered fish and wildlife (ORS 496.171-496.192 and OAR 635-100-0105). Both of these agencies have entered into cooperative (Section 6) agreements with the USFWS for the purpose of carrying out research and conservation programs for animal and plant species under the auspices of the federal ESA. The Natural Heritage Advisory Council has a similar agreement with USFWS for invertebrates (ORBIC 2010). Thus, in addition to the federal ESA, the State of Oregon maintains separate lists of threatened and endangered species.[10]

**Table 1N** identifies federal and state-listed species that may occur in Benton County. The Portland State University's Oregon Biodiversity Information Center

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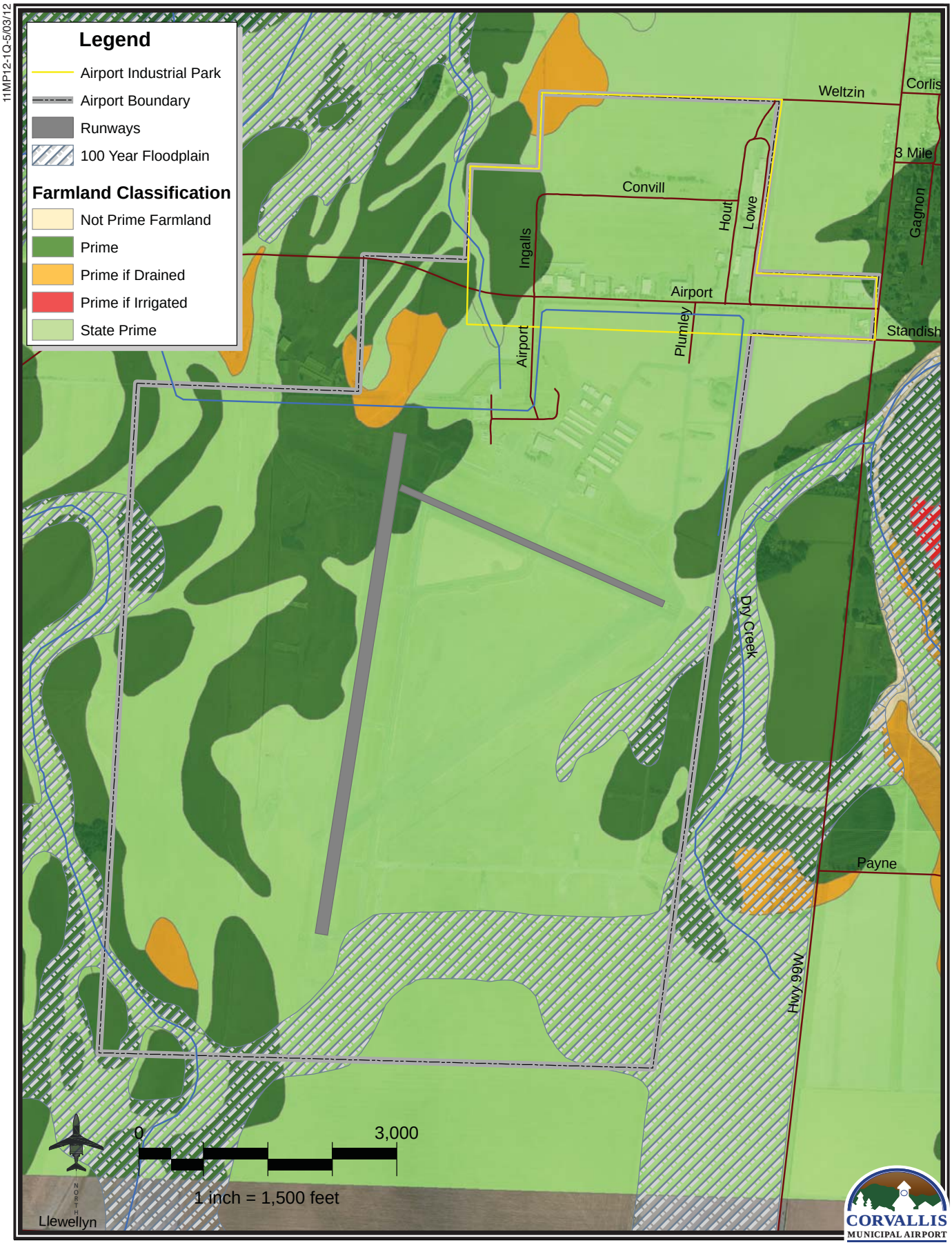


*Source: Farmland Classification from Natural Resource Conservation Service (NRCS): http://websoilsurvey.nrcs.usda.gov/app/*
*Floodplains: Federal Emergency Management Agency (FEMA) from City of Corvallis GIS Department.*
*Wetlands: City of Corvallis GIS Department*

Exhibit 1Q
FLOODPLAINS AND FARMLAND

(ORBIC) also maintains a list and ranking of rare species based on a system that was developed by The Nature Conservancy.[11]

**TABLE 1N**
**Federal and State Protected Species**
**Benton County, OR**

| Species | Scientific Name | State Status | Federal Status |
|---|---|---|---|
| **BIRDS:** | | | |
| Marbled murrelet | *Brachyramphus marmoratus* | Threatened | Threatened - designated critical habitat |
| Northern spotted owl | *Strix occidentalis caurina* | Threatened | Threatened - designated critical habitat |
| Streaked horned lark | *Eremophila alpestris strigata* | Candidate | Candidate |
| Bald Eagle | *Haliaeetus leucocephalus* | Threatened | De-listed |
| **FISH:** | | | |
| Oregon chub | *Oregonichthys crameri* | Threatened | Threatened - designated critical habitat |
| **INSECTS:** | | | |
| Fender's blue butterfly | *Icaricia icarioides fenderi* | Not listed | Endangered; designated critical habitat |
| Taylor's checkerspot | *Euphydryas editha taylori* | Not listed | Candidate |
| **MAMMALS:** | | | |
| Red tree vole | *Arborimus longicaudus* | Not listed | Candidate |
| **PLANTS:** | | | |
| Golden paintbrush | *Castilleja levisecta* | Threatened | Threatened |
| Willamette daisy | *Erigeron decumbens var. decumbens* | Endangered | Endangered - designated critical habitat |
| Water howellia | *Howellia aquatilis* | Threatened | Threatened |
| Bradshaw's desert parsley | *Lomatium bradshawii* | Endangered | Endangered |
| Kincaid's lupine | *Lupinus sulphureus ssp. kincaidii* | Threatened | Threatened - designated critical habitat |
| Nelson's checker-mallow | *Sidalcea nelsoniana* | Threatened | Threatened |
| Peacock larkspur | *Delphinium pavonaceum* | Endangered | Federal species of concern |

NOTES: An endangered species is one that is in danger of extinction throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered in the foreseeable future. A candidate species is one for which the USFWS has sufficient information to support a proposal to list as endangered or threatened.

*Source: USFWS, Oregon Fish and Wildlife Office http://www.fws.gov/oregonfwo/Species/Lists/Documents/County/BENTON%20COUNTY.pdf, accessed November 11, 2011; ODFW, Wildlife Division,http://www.dfw.state.or.us/wildlife/diversity/species/threatened_endangered_candidate_list.asp, accessed November 14, 2011; ODA, Plant Division, http://www.oregon.gov/ODA/PLANT/CONSERVATION/listdelist.shtml, accessed November 14, 2011.*

Benton County is currently working on a *Species Habitat Conservation Plan* (HCP) that is intended to protect wet or upland prairie habitat in Benton County. The seven species covered under this HCP exclusively occupy these habitats and include Fender's blue butterfly, Taylor's checkerspot butterfly, Bradshaw's desert parsley, Kincaid's lupine, peacock larkspur, Nelson's checker-mallow, and Willamette daisy. Although the City of Corvallis is a participant in the HCP, Corvallis Municipal Airport is not within the mapped areas of known habitat. The known habitat area closest to the airport is the Herbert Farm and Natural Area, located approximately 1.5 miles north of the airport.

## FLOODPLAINS

Executive Order 11988 directs federal agencies to take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by the floodplains.

The Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps were consulted to determine potential flooding issues related to Corvallis Municipal Airport. As shown on the FEMA floodplain maps (Map ID #s 41003C0193F, 0310F and 0307F),[12] portions of the 100-year floodplain of Muddy

Creek cross the airport to the west, south, and southeast of the runway system. (See the discussion on Water Quality for more information on area-wide drainage.) The floodplains in the airport area are shown on **Exhibit 1Q**.

## HAZARDOUS MATERIALS AND WASTES

Federal, state, and local laws, including the *Resource Conservation Recovery Act* (RCRA) and the *Comprehensive Environmental Response, Compensation, Liability Act* (CERCLA), as amended (also known as the Superfund), regulate hazardous materials use, storage, transport, and disposal. These laws may extend to past and future landowners of properties containing these materials. In addition, disrupting sites containing hazardous materials or contaminates may cause significant impacts to soil, surface water, groundwater, air quality, and the organisms using these resources.

Since 1988, the city has been cleaning up chromium-contaminated ground water at the United Chrome Superfund Cleanup airport site (City of Corvallis 2011). At this time, chrome concentrations in the ground water meet the clean-up requirements and are low enough to be treated at the city's wastewater reclamation plant, and the onsite treatment plant has been dismantled. Meetings are ongoing with EPA to discuss the final closure plan for the site. Even after an agreement has been reached, water quality monitoring will continue to be required.

According to the EPA's EJ View Enviromapper web site, within the Corvallis Municipal Airport Industrial Park, there are several businesses that currently report to the EPA for their handling of hazardous materials or wastes.[13] In addition, search results for Environmental Site Cleanup Information at the airport from the Oregon Department of Environmental Quality's (ODEQ) database shows three former cleanup sites – two at the industrial park (Site IDs 4673 and 4867) and one associated with the Army airfield (Site ID 3392).[14] Site ID 4673 is recommended for further investigation; the other two sites have already been investigated and no further action is necessary. One Leaking Underground Storage Tank (LUST) at the airport is also listed in ODEQ's database. This tank, located at 5671 Plumley Street, was cleaned up in 2007 and no further action is required.[15]

## HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

Determination of a project's environmental impact to historic and cultural resources is made under guidance in the *National Historic Preservation Act* (NHPA) *of 1966*, as amended, the *Archaeological and Historic Preservation Act* (AHPA) *of 1974*, the *Archaeological Resources Protection Act* (ARPA), and the *Native American Graves Protection and Repatriation Act* (NAGPRA) *of 1990*. Impacts may occur when the proposed project causes an adverse effect on a property which has been identified (or is unearthed during construction) as having historical, architectural, archaeological, or cultural significance.

According to the National Register of Historic Places and the Oregon Historic Sites Data Base, there are no federal or state-registered properties at the airport. The nearest listed property is the Crystal Lake Cemetery located approximately four (4) miles northeast of the airport.[16] However, the airport was originally a World War

II Army base. In addition, the surrounding rivers and creeks have a high potential for prehistoric cultural sites. It is recommended (and will most likely be required by the Oregon State Historic Preservation Officer) that cultural resource surveys be conducted prior to the implementation of specific airport projects.

As discussed previously under Department of Transportation (DOT) Act: Section 4(f), Benton County also maintains a register of historic places. Based on this database, there is one historic property (i.e., McBee farm) within one mile of the airport.

**VISUAL RESOURCES**

Visual resources primarily refer to the light emitting from the airport. Airport lighting is characterized as either airfield lighting (i.e., runway, taxiway, approach and landing lights) or landside lighting (i.e., security lights, building interior lighting, parking lights, and signage). Generally, airport lighting does not result in significant impacts unless a high intensity strobe light, such as a Runway End Identifier Lighting (REIL), would produce glare on any adjoining site, particularly residential uses. The existing light features of the airport are described in detail previously in this chapter.

Any planned development for the airport should consider the lighting impacts to surrounding areas.

**ENERGY SUPPLY AND NATURAL RESOURCES**

Energy requirements associated with airport development projects generally fall into two categories: (1) those that relate to changed demands for stationary facilities (i.e., airfield lighting and terminal building heating); and (2) those that involve the movement of air and ground vehicles (i.e., fuel consumption). In addition to fuel, the use of natural resources includes construction materials, water, and manpower.

Per FAA Order 1050.1E, Appendix A, Paragraph 13.3, an impact arises when a project will have a measurable effect on local energy supplies or would require the use of an unusual material or one in short supply. Increased consumption of fuel by aircraft is examined where ground movement or run-up times are increased substantially without offsetting efficiencies in operational procedures, or if the action includes a change in flight patterns. Ground vehicles' fuel consumption is examined only if the action would add appreciably to access time, or if there would be a substantial change in movement patterns for on-airport service or other vehicles.

**NOISE**

Per federal regulation, the Yearly Day-Night Average Sound Level (DNL) is used in this study to assess aircraft noise. DNL is the metric currently accepted by the FAA, EPA, and Department of Housing and Urban Development (HUD) as an appropriate measure of cumulative noise exposure. These three agencies have each identified the 65 DNL noise contour as the threshold of incompatibility. Noise exposure contours are overlaid on maps of existing and planned land uses to determine areas that may be affected by aircraft noise at or above 65 DNL. The noise exposure contours are developed using the FAA-approved Integrated Noise Model

(INM) which accepts inputs for several airport characteristics including: aircraft type, operations, flight tracks, time of day, and topography.

According to Figure E1 from the 2001 Airport Master Plan, the 65 DNL did extend beyond airport property slightly on both the north and south ends of Runway 17-35. The areas covered are currently agricultural uses. Once the master plan concept is defined and the aviation demand forecasts are approved by the FAA, noise exposure contours will be developed for Corvallis Municipal Airport and presented in **Appendix E**.

## SOCIAL IMPACTS

Social impacts include socioeconomic impacts, environmental justice, and children's environmental health and safety risks.

Socioeconomic impacts known to result from airport improvements are often associated with relocation activities or other community disruptions, including alterations to surface transportation patterns, division or disruption of existing communities, interferences with orderly planned development, or an appreciable change in employment related to the project. The acquisition of real property or displacing people or businesses is required to conform to the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* (URARPAPA). These regulations mandate that certain relocation assistance services be made available to owners/tenants of the properties.

Executive Order 12898, *Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations,* and the accompanying Presidential Memorandum, and Order DOT 5610.2, *Environmental Justice*, require FAA to provide for meaningful public involvement by minority and low-income populations as well as analysis that identifies and addresses potential impacts on these populations that may be disproportionately high and adverse.

Environmental justice can be defined as insuring that an action does not unfairly impact a minority race or families living under the poverty level. The EPA's *EJView*[17] was consulted regarding the presence of environmental justice areas within the airport environs. According to the EPA, the airport environs do not contain high percentages (above 50 percent) of minority populations or high percentages of residents below the poverty level.

Pursuant to Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks,* federal agencies are directed to identify and assess environmental health and safety risks that may disproportionately affect children. These risks include those that are attributable to products or substances that a child is likely to come in contact with or ingest, such as air, food, drinking water, recreational waters, soil, or products to which they may be exposed.

During construction projects at the airport, appropriate measures should be taken to prevent access by unauthorized persons to construction project areas. Additionally, best management practices (BMPs) should be implemented to decrease environmental health risks to children.

## WATER QUALITY

The *Clean Water Act* provides the authority to establish water quality standards, control discharges, develop waste treatment management plans and practices, prevent or minimize the loss of wetlands, and regulate other issues concerning water quality. Water quality concerns related to airport development most often relate to the potential for surface runoff and soil erosion, as well as the storage and handling of fuel, petroleum products, solvents, etc.

There are several tributaries of the Willamette River within the vicinity of the airport including Muddy Creek and Marys River to the northwest, and Dry Creek and the Boonesville Channel to the east. The entire area, known as the Booneville Slough (i.e., the Willamette Valley), drains from south to north. The Willamette River itself is located east of the airport between Highways 99W and 99E.

According to ODEQ's *2004/2006 Water Quality Assessment Integrated Report* (which was approved by the EPA in 2007), the Upper Willamette Valley watershed (Hydrologic Unit 17090003) has numerous impaired waters under the *Clean Water Act,* Section 303(d).[18] The ODEQ is required by the federal *Clean Water Act* to maintain a list of stream segments that do not meet water quality standards. The following Benton County rivers and streams are on the list: Alsea River, Lobster Creek, Long Tom River, Luckiamute River, Marys River, Muddy Creek, and the Willamette River (Benton County 2007).

The City of Corvallis has a permit from DEQ's National Pollutant Discharge Elimination System (NPDES) program regulating the discharge of storm water from the airport site. As part of the permit compliance, the city tests water outflow from the airport four times a year to determine compliance with EPA and DEQ storm water quality regulations.[19] As discussed previously, the city has also been cleaning up chromium-contaminated ground water at the United Chrome Superfund Cleanup airport site.

## WETLANDS/WATERS OF THE UNITED STATES

The U.S. Army Corps of Engineers regulates the discharge of dredged and/or fill material into waters of the United States, including adjacent wetlands, under Section 404 of the *Clean Water Act*. Wetlands are defined in Executive Order 11990, *Protection of Wetlands*, as "those areas that are inundated by surface or groundwater with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetation or aquatic life that requires saturated or seasonably saturated soil conditions for growth and reproduction." Wetlands can include swamps, marshes, bogs, sloughs, potholes, wet meadows, river overflows, mud flats, natural ponds, estuarine areas, tidal overflows, and shallow lakes and ponds with emergent vegetation. Wetlands exhibit three characteristics: the soil is inundated or saturated to the surface at some time during the growing season (hydrology), has a population of plants able to tolerate various degrees of flooding or frequent saturation (hydrophytes), and soils that are saturated enough to develop anaerobic conditions during the growing season (hydric).

The airport property is comprised of hydric and partially hydric soils, which indicate that wetlands could potentially be present.[20] In addition, as shown on **Ex-**

**hibit 1R,** the City of Corvallis' Local Wetland Inventory has wetlands mapped on and adjacent to the airport.[21] Both the U.S. Army Corps of Engineers (*Clean Water Act,* Section 404) and the Oregon Department of State Lands (*Removal-Fill Law*, ORS 196.75-990)[22] require permits prior to the removal or placement of fill within wetland areas or jurisdictional waters.

The airport has a current 404 permit for the Airport Industrial Park listed with the state as Certified Industrial Land. Approximately 17 acres have been mitigated at an area south of Junction City, OR.

Benton County is currently (2012) developing a riparian protection program, and it is not known what affect, if any, this will have on the airport.

**WILD AND SCENIC RIVERS**

There are numerous wild and scenic river designations under the federal *Wild and Scenic Rivers Act* within the State of Oregon. The closest federally designated segment to Corvallis Municipal Airport is a 12-mile segment of Quartzville Creek, located on a Bureau of Land Management (BLM) site immediately upstream from Green Peter Lake. This creek segment is designated as "recreational" under the *Wild and Scenic Rivers Act* and is located approximately 40 miles northeast of the airport. There are no federally designated wild or scenic rivers in Benton County (Benton County 2007). The protections under Statewide Planning goal 15, "Willamette River Greenway", do not apply to the airport, as the river is approximately 2.5 miles to the east.

## *SUMMARY*

The information discussed in this inventory chapter provides a foundation upon which the remaining elements of the planning process will be constructed. Information on current air-port facilities and utilization will serve as a basis, with additional analysis and data collection, for the development of forecasts of aviation activity and facility requirement determinations.

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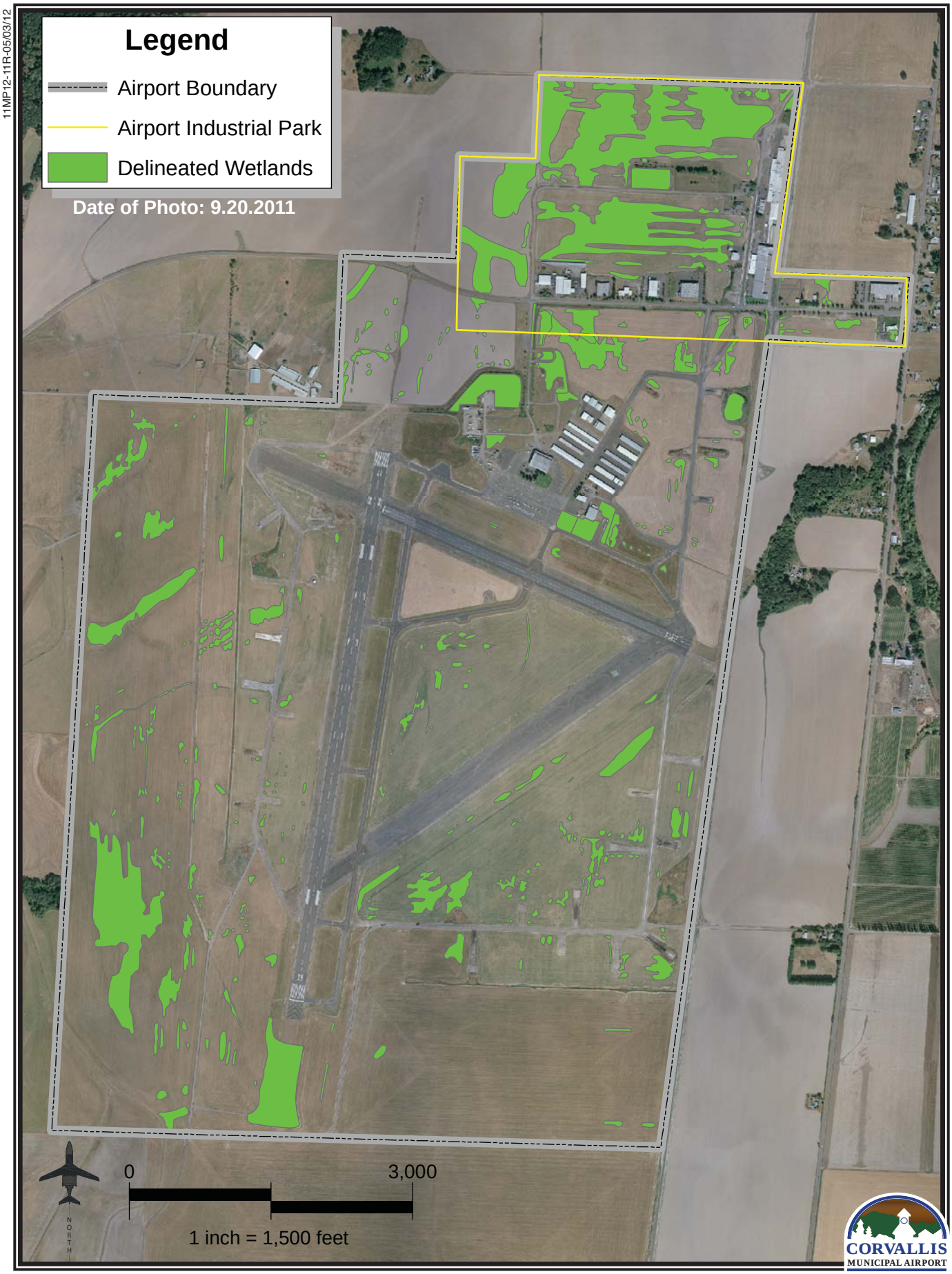


Source: Wetlands Delineation from Corvallis GIS Department

Exhibit 1R
AIRPORT WETLANDS

## *DOCUMENT SOURCES*

A variety of different sources were utilized in the inventory process. The following listing reflects a partial compilation of these sources. This does not include data provided by airport management as part of their records, nor does it include airport drawings and photographs which were referenced for information. On-site inventory and interviews with staff and tenants contributed to the inventory effort.

*Airport/Facility Directory, Northwest U.S.,* U.S. Department of Transportation, Federal Aviation Administration, National Aeronautical Charting Office, October 20,2011.

*Klamath Falls Sectional Aeronautical Chart*, U.S. Department of Transportation, Federal Aviation Administration, National Aeronautical Charting Office, October 21, 2011.

*National Plan of Integrated Airport Systems* (NPIAS), U.S. Department of Transportation, Federal Aviation Administration, 2011-2015.

*U.S. Terminal Procedures, Northwest*, U.S. Department of Transportation, Federal Aviation Administration, National Aeronautical Charting Office, October 20, 2011.

*Complete Economic and Demographic Data Source (CEDDS),* Woods & Poole Economics, 2011. Washington, D.C.

*Corvallis Municipal Airport Master Plan Update*. City of Corvallis, 2001. Prepared by Bernard Dunkelberg. Available at:
http://www.ci.corvallis.or.us/index.php?option=com_content&task=view&id=1937&Itemid=2199

*Benton County Comprehensive Plan*. Benton County, March 22, 2007. Adopted by Ordinance No. 2007-0217. Available at:
http://www.co.benton.or.us/cd/planning/documents/cp-complete.pdf, accessed November 14, 2011.

*Benton County Development Code*. Benton County, November, 2005. Available at:
http://www.co.benton.or.us/cd/planning/code.php

*City of Corvallis Comprehensive Plan*. City of Corvallis, Acknowledged June 26, 2000. Available at:
http://www.ci.corvallis.or.us/index.php?Itemid=242&id=290&option=content&task=view

*Regional Transportation Plan.* Corvallis Area Metropolitan Planning Organization, 2006. Available at: http://www.corvallisareampo.org/RegionalTansportationPlan.html

*Oregon Airport Land Use Compatibility Guidebook.* Oregon Department of Aviation, 2003. Prepared by Mead & Hunt.
Available at: http://www.oregon.gov/Aviation/landuseguidebook.shtml

*Oregon Aviation Plan*. Oregon Department of Aviation, 2007. Prepared by Mead & Hunt. Available at: http://www.oregon.gov/Aviation/resources.shtml

*Oregon Aviation Economic Impact Study – 2007*, contained in the *Oregon Aviation Plan*. Prepared by Wilbur Smith Associates. Available at: http://www.oregon.gov/Aviation/resources.shtml

*Benton County Prairie Species Habitat Conservation Plan*. Benton County, December 2010. Available at: http://www.co.benton.or.us/parks/hcp/documents/documents/BentonCountyPrairieSpeciesHCP.pdf, accessed November 14, 2011.

*Service Summary Airport Report*. City of Corvallis, January 2011. Public Works Department, Available at: http://www.ci.corvallis.or.us/downloads/pw/SvcSumAirport.pdf, accessed November 10, 2011.

*Rare, Threatened and Endangered Species of Oregon*. Oregon Biodiversity Information Center (ORBIC), Portland State University, Institute for Natural Resources, October 2010. Available at: http://orbic.pdx.edu/documents/2010-rte-book.pdf, accessed November 14, 2011.

A number of websites were also used to collect information for the inventory chapter. These include the following:

The City of Corvallis:
http://www.ci.corvallis.or.us
Corvallis Chamber of Commerce:
http://www.corvallischamber.com

FAA 5010 Airport Master Record Data:
www.airnav.com

U.S. Census Bureau:
www.census.gov

GCR and Associates.
http://www.airportiq.com/default.htm

Oregon Climate Services
http://www.ocs.orst.edu/climate-of-oregon

EPA Green Power Partnership
http://www.epa.gov/greenpower/

Federal Aviation Administration
http://www.faa.gov

## Endnotes:

[1] http://www.epa.gov/oar/oaqps/greenbk/anay_or.html, accessed November 11, 2011.
[2] http://www.oregon.gov/LCD/OCMP/CstZone_Intro.shtml, accessed November 10, 2011.
[3] http://www.ci.corvallis.or.us/index.php?option=content&task=view&id=549&Itemid=491, accessed on November 10, 2011.
[4] http://www.fws.gov/refuges/profiles/index.cfm?id=13589 , accessed on November 10, 2011.
[5] http://www.co.benton.or.us/cd/planning/historic_register.php, accessed November 14, 2011.
[6] http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx, accessed November 10, 2011.
[7] http://orbic.pdx.edu/documents/Oregon_eco_county_map.pdf, accessed November 14, 2011.
[8] http://www.corvallisaeroservice.com//index.php?option=com_content&task=view&id=23&Itemid=39, accessed November 10, 2011.
[9] http://www.fws.gov/oregonfwo/Species/Lists/Documents/County/BENTON%20COUNTY.pdf, accessed November 11, 2011.
[10] http://orbic.pdx.edu/rte-species.html, accessed November 14, 2011.
[11] Ibid.
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